ECA/PAMM/HRP/87/18[5.2(i)]

# EDUCATION STAFF TRAINING DEVELOPMENT PROGRAMME

REPORT OF THE REGIONAL CURRICULUM DEVELOPMENT COURSE FOR CURRICULUM DEVELOPERS ON THE PRINCIPLES, METHODS AND TECHNIQUES OF CURRICULUM PLANNING AND DEVELOPMENT IN AFRICAN COUNTRIES

MALAWI INSTITUTE OF EDUCATION
Domasi (Malawi), 5 October - 13 November 1987

Planned and Organized by the
United Nations Economic Commission for Africa (ECA)
and The African Curriculum Organization (ACO) in collaboration with
The German Foundation for International Development

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PART ONE

## I. Organization

The regional curriculum development course on the principles of curriculum planning and development was planned and organized by the African Curriculum Organization (ACO) and the United Nations Economic Commission for Africa (ECA) in collaboration with the German Foundation for International Development (DSE). It was conducted as an introduction to the principles and methods of curriculum planning, curriculum and instructional designs for the participants.

## II. Date and Venue

The course was conducted at the Malawi Institute of Education, Domasi, from 5 October to 13 November 1987 (i.e., for six weeks).

## III. Participation

The course was attended by thirty four participants from sixteen English-speaking African countries, viz: Botswana, Cameroon, Ethiopia, The Gambia, Ghana, Kenya, Liberia, Malawi, Mauritius, Sierra Leone, Somalia, Swaziland, Tanzania, Uganda, Zambia and Zimbabwe. The participants from these countries consisted of non-graduates curriculum development workers, teacher training college tutors, persons employed in teacher advisory and education resource centres; instructional supervisors including inspectors of schools; and graduates from curriculum development centres without any formal training in curriculum development. The full list of participants appears as Annex II to this report.

## IV. Resource Personnel

There were four resource persons for this course: one each from the Economic Commission for Africa; the Malawi Institute of Education; the University of Pittsburgh (USA); and the National Curriculum Development Centre, Zambia. There were also three tutorial assistants, two from the Malawi Institute of Education and one from the Institute of Education, Tanzania (Annex III).

## V. Opening of the Course

The course was opened by Dr. Dubby, Vice-Chancellor of the University of Malawi. In his opening remarks, Dr. Dubby thanked the African Curriculum Organization (ACO) for muting and organizing the course and for choosing the Institute as venue for the course. This, he said, only helped to demonstrate the faith ACO had in the activities of the Malawi Institute of Education. He also thanked the resource persons for accepting the ardious task ahead of them and the participants for attending the course; and the German Foundation for International Development for financial assistance.

He emphasized that while Malawi was engaged in finding solutions to problems of curriculum planning, development and evaluation, the problems cut across the African continent and were the concern of many developing nations. He said that many African countries were finding it difficult to develop the kind of education which would be in tune with individual needs and those of society and the nation. The difficult situation was compounded by the limited resources (both human and financial) made available to education.

In this regard, he pointed out that the course had been organized at an opportune time when many African countries were experiencing serious economic conditions, and the products of the school system were not being readily absorbed by the economic sectors; nor were they coming of the system with readily usable skills, knowledge and attitudes. He therefore urged the participants to seriously address themselves to the problems of curriculum development and evaluation and particularly to the development of instructional materials. He therefore appealed to the participants to use the time allocated to assignments very effectively.

He wished them a happy stay in Malawi.

## VI. Rationale for the Course

Foremost in the minds of the organizers was the view that the development of curriculum should be seen as an integral and continuing part of education development policies and of educational planning. In this regard, the several disciplines within curriculum must be seen as constituting an integral whole requiring not only total development en tout, but en suite. Curriculum development was therefore been viewed as a continuing process which requires appropriate national mechanism to deal with it.

While curriculum and teaching tend to adjust themselves to change, the pace of adjustment is too slow to keep abreast with the changing economic fortunes in Africa. Hence the need for deliberate actions to hasten and facilitate the process of curriculum adjustment especially considering that structural and organizational changes usually take time to be effective. For this reason, curriculum assumes the attributes of a regulating mechanism reaching beyond the formal substance of education and touching the very core of the process through which general concepts and objectives are translated into educational practice and results. In this regard, curriculum at all levels of the educational system must reflect the needs of the individual and society taking into account the presently accepted knowledge of new discoveries, research and technology.

This course, therefore, was designed to help and ease the tasks of decision-making of the participants who were involved in curriculum development in their respective countries. Most of these participants non-graduate curriculum developers; teacher trainers; persons employed at education resource centres; graduates in curriculum development centres without any formal training in curriculum development; or instructional supervisors including inspectors of schools. The course was therefore intended to equip them with knowledge and skills so that they would play a more effective role in curriculum planning, curriculum design and evaluation and the development of instructional materials.

## VII. Objectives of the Course

The general objectives of the course were to:

1. Acquaint participants with the concepts and techniques of curriculum development and implementation.

2. Give participants practical orientation in the processes and techniques of curriculum development.

3. Stimulate interest in and inculcate the habit of self-development in curriculum development and evaluation.

### Specific Objectives

More specifically, at the end of the course, participants should be able to:

1. Explain the difference between curriculum planning and curriculum development.

2. Discuss the process of curriculum planning, development and implementation.

3. Describe a number of curriculum development models.

4. Explain the role of objectives in curriculum planning and development.

5. Name and describe five examples of curriculum designs.

6. Explain how to select content for an approved curriculum.

7. Explain how to select learning experiences for a subject at a chosen level of education.

8. Explain the concept of evaluation.

9. Discuss some models of evaluation in terms of their usefulness in the African context including their advantages and disadvantages.

10. Formulate objectives for the curriculum and curriculum development from a set of policy guidelines, conditions and circumstances in a given country.

11. Design a model of curriculum development for a selected country.

12. Develop a programme from objectives and situation analysis of a selected country.

13. Select content for an approved curriculum.

14. Develop a scope and sequence for a primary or secondary school subject.

15. Select learning experiences for a subject at a selected level of education.

16. Develop a unit of instruction in a chosen subject for a specific level of education.

17. Evaluate instructional materials in the classroom.

18. Evaluate the following:

    A syllabus
    Pupils' textbook
    Teachers' guide.

19. Describe and critically appraise a selected Curriculum Development Project in Africa.

20. Write a proposal for the evaluation of a curriculum development project.

In pursuance of the above objective, a design of the course content was as follows:

VIII. Content of the Course

A. The course covered the following areas of study:

Topic 1: Concepts of Curriculum and Curriculum Development

The curriculum development process.

The methods of a situation analysis and its importance for curriculum development.

The selection of objectives in curriculum planning.

Programme implementation.

Resources (for planning or implementation).

Topic 2: Objectives in Curriculum Development

The importance of objectives in curriculum development.

Models of curriculum development.

Developing a curriculum development model.

Topic 3: Content Selection

Determining criteria for selection of content.

Selecting a concept of knowledge content.

Selecting content.

Developing a scope and sequence.

Developing a teaching syllabus.

Topic 4: Selection of Learning Experiences

Criteria for selection of learning experiences.

Selecting and organizing experiences.

Relating experiences to educational environments.

Selecting conception of instruction.

Topic 5: Curriculum Designs

Main theories influencing curriculum design - their strengths and limitations in the perspective of their implementation in African Curriculum Development Centres.

Skills in the process of designing a curriculum plan especially as it relates to primary and basic education.

Steps in curriculum design:

situation analysis
objectives
content'

Designs based on specific competencies.

Designs based on subject disciplines.

Designs based on social activities and problems.

Designs based on process skills.

Designs based on individual needs and interests.

Guidelines for selecting appropriate curriculum designs.

Curriculum design for a selected African Country.

Topic 6: Curriculum Design: Scope and Sequence

Organization of content and learning experiences.

Criteria for developing a scope and sequence.

Analysis of Pupils' Books, Teachers' Guides and Syllabuses.

Topic 7: Curriculum Evaluation

The nature and meaning of evaluation.

Evaluation of curriculum change at the planning stage, the try-out stage and the implementation stage.

Models of evaluation.

Major exercise on programme evaluation.

Topic 8: Developing Instructional Materials

Teachers' Guides and Pupils' Books as aids to teaching and learning.

Planning the pupils' book and teachers' guide.

Developing the manuscript.

Evaluation of instructional materials.

B. Assignments

At every stage during the course, participants will be requested to do practical assignments which relate to every aspect of the course.

The assignments will, among other things, involve the following:

1. Description of a particular educational environment.

2. Formulation of curriculum objectives for a chosen educational environment.

3. Design of a curriculum model for a specific educational environment.

4. Selection of content and learning experiences for a particular curriculum design.

5. Developing a scope and sequence for the selected content for a given curriculum design.

6. Developing one or two units of instruction.

7. Evaluation of an instructional unit.

8. Selection of an evaluation model for the evaluation of a selected educational project.

9. Critical appraisal of an African Curriculum Development Project e.g., Science Education Programme for Africa, African Social Science Programme.

The actual assignments done during the course week by week are detailed as follows:

ASSIGNMENTS FOR WEEK ONE

Assignment 1

1. Explain the difference between goals, aims and objectives; give three examples of each from the educational system of your country.

2. Give three or four examples of each of the following from the educational system of your country:

   Ultimate goals

   Mediate goals

   Proximate goals

3. In a group of five or more of your professional colleagues, discuss each of the phases of the curriculum process.

4. Discuss critically, the curriculum process which has been adopted in your country.

Assignment 2

1. Discuss the nature, function and organization of curriculum goals, aims and objectives in the curriculum planning process.

2. (a) State the national goals of education in your country.

   (b) Describe how you would use the Wheeler Model or curriculum planning in the curriculum process of your country.

3. To what extent would you be able to use the Tyler Model for curriculum planning in your country? What problems would you expect to encounter and how would you attempt to overcome them?

4. Here is a set of national goals of education:

   (a) Education must serve to foster national unity.

   (b) Education must serve the needs of national development.

   (c) Education must promote social justice and morality by instilling the right attitudes necessary for the training in social obligations and responsibilities.

   (d) Education must foster, develop and communicate the rich and varied cultures of the country.

   (e) Our country is a member of the International Community and hence its education system must foster positive attitudes and consciousness towards other nations.

   Examine three goals very carefully and then formulate or derive a set of appropriate primary education objectives from them.

5. Describe, in some detail, a model of curriculum development which you would consider to be the most appropriate for your country.

## ASSIGNMENTS FOR WEEK TWO

### Assignment 3

1. Explain briefly what is meant by the term learning experience.

2. List the various criteria for selecting learning experiences.

3. Describe any three criteria for selecting learning experiences.

4. Analyse a standard six teachers' guide in your own teaching subject and then discuss the appropriateness of the learning experiences which have been selected. Suggest ways in which the learning experiences in your teachers' guide could be improved upon.

5. Examine a syllabus of any one of the following in your own subject of specialization:

   (a) Standard eight

   (b) Second year of a secondary school class.

   What learning experiences would you consider to be appropriate for this level? Justify your choice of learning experiences.

### Assignment 4

1. Explain what is meant by content in curriculum planning.

2. List the various criteria for the selection of content in curriculum planning.

3. In a group of five or more of your professional colleagues, discuss the main criteria for the selection of content in curriculum planning.

4. Using the criteria of content selection, evaluate the content of either the primary or secondary education curriculum in your subject of specialization.

5. (a) State the objectives of primary education in your country.

   (b) Use the objectives stated above to select content for the first two grades of primary education. As much as possible, give reasons for your choice of content.

## ASSIGNMENTS FOR WEEK THREE

### Assignment 5

1. Analyse the major curriculum document in your educational system and determine which curriculum design has been used. Find out if there is any rationale given for the design selected. Are there any major assumptions of the design attended to in the document and are there suggestions as to how to avoid some of the design weaknesses? Give a detailed record of your general reactions to the design utilized.

2. You are provided with a curriculum document. Study the document and determine if any design problems exist. If so, suggest some ways to correct the problems which you have identified.

   For the purpose of this assignment, it is assumed that you are very familiar with the educational system in your country.

   You are required to develop a curriculum design for your educational system. Produce as comprehensive a document as possible.

### Assignment 6

1. You are given a scope and sequence chart for primary mathematics in Malawi. Examine this chart and identify as many weaknesses as you can see and then suggest how these could be rectified.

2. Study a scope and sequence chart for your own subject of specialization for the primary education sector in your own country. Using the criteria indicated in this unit, write a critique of the chart.

3. You are given a syllabus of your subject of specialization. Prepare a scope and sequence chart for use by teachers in your school system.

## ASSIGNMENT FOR WEEK FOUR

### Assignment 7

1. Answer each of the following questions:

   (a) Define or describe evaluation.

   (b) Describe the major steps in the evaluation process.

   (c) Define or describe measurement.

(d) List at least three ways in which data can be collected.

(e) Describe the major benefit to be derived from increased demands for accountability.

2. Select the type of evaluation of most relevance and interest to you. Briefly describe a specific instance of this type, real or hypothetical, in which you are, will be, or could be involved (e.g., a unit of instruction or a specific programme). Briefly describe the factors which would be involved in the planning phase of evaluation of the above-described endeavour.

Performance Criteria

Your description should include the following:

(a) The type of background information which needs to be collected.

(b) Any major constraints which might be operating.

(c) The kinds of objectives which will be developed and at least one specific example.

(d) The kind of objectives which are involved (if appropriate) and at least one specific example.

(e) The type of measurement which will be involved (e.g., an algebre achievement test) and how measures will be obtained (e.g., a standardized test will be selected from those available.

(f) Basic strategies (and related activities) for objective attainment.

(g) The type of design which will be utilized (if appropriate).

(h) A time schedule for the major events in all three phases of the evaluation (the planning phase, the process phase, and the product phase.

You are not expected to produce a plan which is technically accurate. Later on, you will learn the correct way to state an objective. For now it is sufficient that you demonstrate comprehension of the activities involved in the planning phase of evaluation and the ability to apply that knowledge to a specific situation.

3. The Malawi Institute of Education has been running a course for District Inspectors of Schools and Primary School Inspectors for the last four years. Write a proposal for the evaluation of this course.

   For the purpose of this assignment you will be provided with the relevant Course Handbook.

4. You have a programme of training untrained teachers in your country. Describe how you would use Tyler's Model of Evaluation to evaluate this programme.

ASSIGNMENT FOR WEEK FIVE

Assignment 8

You are given a copy of the syllabus for your own subject of specialization. Choose one or two topics for a particular level and then do the following:

(a) Develop a unit or two for a pupils' book for the chosen level.

(b) Write a corresponding unit for a Teachers' Guide to be used by the teacher.

(c) Try your unit with a group of pupils in a selected school.

(d) Write a brief report of your trial.

(e) Indicate in what way the unit was improved as a result of the trial.

C. Course Materials

1. Course materials were made available to all course participants upon arrival at the Institute. The course Directors had [illegible] instructional materials to cover the specific requirements of the course. The Institute Library was also available for further reading.

2. Each course participant was required to bring the following:

   (a) A document which contains the primary school syllabuses of his or her country. A similar document for secondary education may be brought along.

   (b) A teaching syllabus in your own subject of specialisation.

   (c) A scope and sequence chart in any two subjects including your own subject of specialization.

   (d) Your current Education Development Plan or any other document which spells out your national policy for education.

(e) Sample Pupils' Textbooks (at least two) which are being used in your primary schools.

(f) Sample Teachers' Guides which go along with the Pupils' Textbooks which you are bringing to the course.

D. Training Strategy

For each topic, there was a series of presentations and discussions. These were followed immediately by practical sessions which were designed to translate theory into practice.

Course participants were divided into two or three groups of between ten and fifteen participants each. Each group had a Tutorial Assistant who helped participants with the following:

(a) Further explanation of principles which had not been understood.

(b) Translation of theory into practice and an application of the principles of curriculum development as they relate to each topic under discussion.

(c) Provision of any other materials which was required by course participants.

(d) Professional problems and difficulties of course participants.

Approximately 50 per cent of the time was devoted to practical assignments.

PART TWO

IX. Course Proceedings

On the basis of the course content indicated in section VIII of this report, each of the eight topics was presented in plenary by more than one resource person where necessary, and followed by group discussions. These were immediately followed by practical exercises which were designed to translate theory into practice.

Course participants were divided into three groups of ten to twelve participants each. Each group had a tutorial assistant who assisted the participants with the following:

(i) further explanations of principles and concepts which had not been understood;

(ii) translation of theory into practice and an application of the principles of curriculum development as they related to each topic under discussion;

(iii) provision of any other materials which was required by course participants.

(iv) professional problems and difficulties of course participants.

Approximately fifty per cent of the time was devoted to practical assignments done either in groups or individually. What follows hereunder is an account of what happened both in plenary or in groups.

A. Concepts of Curriculum and Curriculum Development

In the presentation of this topic, it was emphasized that there are five phases of curriculum development:

(a) the articulation of goals, aims and objectives;

(b) selection of learning experiences (teaching/learning experiences);

(c) selection of content

(d) organization and integration of learning experiences and content; and

(e) evaluation.

As regards goals, three levels of goals were discussed viz: the ultimate, mediate and proximate goals. An ultimate goal was explained as the kind of behaviour expected to be observed after a long time of say six or more years whereas the mediate goals were the kind of behaviour observed within a given level at each successive grade of the system leading to the achievement of ultimate goals. The proximate goals were explained as the specific statements of intended outcomes. These are measurable and permit evaluation.

A number of examples were given in respect of these goals:

- to develop positive traits of character and ethical values (ultimate goal)

- be able to add any two whole numbers without carrying (proximate)

- be able to add any two whole numbers with carrying from the hundreds to the thousands only (mediate).

As regards phase two of the selection of the appropriate learning experiences it was explained that one should select learning experiences by which the goals will be attained. One should also give consideration of the various levels of objectives to be attained and select the learning experiences accordingly.

The problem however was hard to select the appropriate learning experiences given the objectives. The problem is compounded by the lack of clearly articulated objectives or intended outcomes. It is important to note, therefore, that learning experiences can be achieved by having a medium through which outcomes can be achieved - that medium is content and this was explained as the third phase of curriculum development.

In discussing this third phase it was emphasized that every learning experience involves content. First it was necessary to translate goals and objectives into operational goals before selecting learning experiences and content; that general aims of education should be translated into more specific operational goals to ensure that there is direction in the teaching/learning process; and that the appropriate learning experiences can only be provided through subject matter content.

In discussing the fourth phase of organization and integration of learning experiences and content, a detailed analysis was given of the scope and sequence in the content of a programme; and the development of a syllabus and subject matter. It was important to combine learning experiences and content so as to achieve the intended learning objectives; and the organization of content and learning experiences in which teaching will be made possible.

In examining content curriculum design will have to be examined, i.e., look at the goals, clarify them, select learning experiences and content using selection criteria and combine all these in order to facilitate the teaching/learning process in the classroom.

The fifth phase was evaluation which was concerned with the failure or success of the educational enterprise by means of measurement and assessment of change in behaviour. Co-ordination answers such questions as: were the teaching/learning experiences chosen suitable for attaining the operational objectives; was the content selected appropriate; was the integration effective; were the selected areas or subject matter learned/taught in a compartimentalized fashion, etc.

These issues were discussed in groups and assignments done on them (see assignment 1 in Section VIII of this report).

These five phases were summarized diagrammatically as follows:

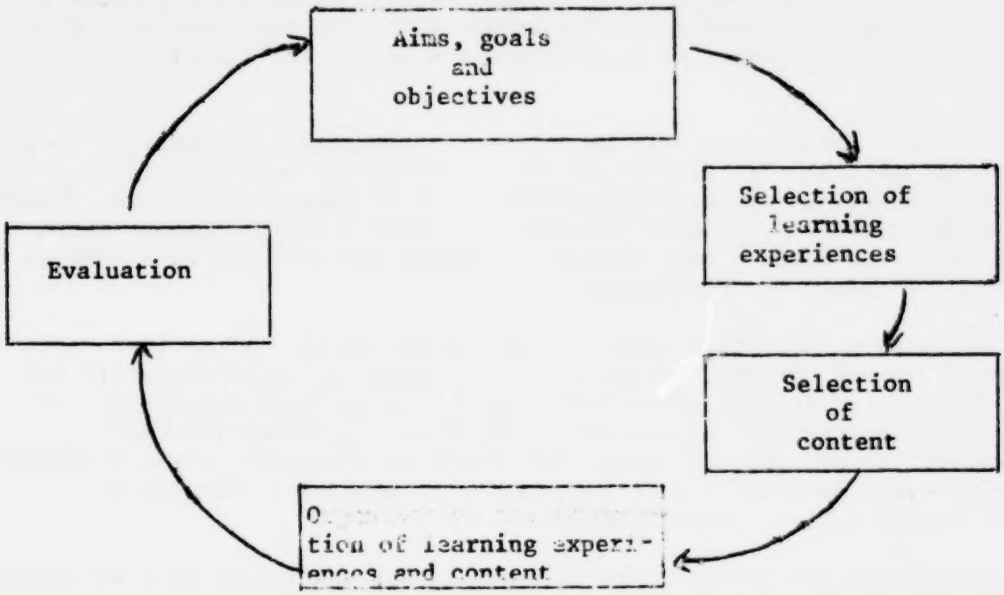



Figure 1: Simple Curriculum Process

The above phases have a certain amount of interdependence between phase 1 and phase 5 because in the process of translating aims into various kinds of goals in phase 1, some forethought has to be given to the means and processes of evaluation. Similarly the various aspects of evaluation tend to affect the derivation of goals, the selection of educational experiences and their organization into sequences. In this regard therefore, curriculum process must be represented as a cycle thereby being subject to continuous scrutiny and constant revision to take into account the development, societal and educational changes.

This analysis of the curriculum process into five phases is an over-simplification of the whole process because in actual practice a curriculum planner does not have to work completely through one phase before moving on to the next. In essence, one has to go backwards and forward in curriculum planning to ensure that general aims are in tune with educational sequences which produce actual outcomes close to the intended behaviour or behavioural patterns.

Following this presentation and the general discussion, participants were divided into three groups under the guidance of the resource persons to do assignments as detailed in Assignment 1 in Section of this report. All the questions relating to this assignment were completed and a verbal report presented to the plenary.

B. Models of Curriculum Development Process

Selected models of curriculum development process were discussed and comparisons made, viz: the Tyler Model; Taba, Wheeler's; Kerr's; Lawton's Models. Other models were mentioned but not discussed. A major point emphasized about curriculum models was that they assist in:

(i) focusing attention on the purpose of what we are trying to do, thereby clarifying our hazy and fuzzy ideas;

(ii) anticipating certain problems which if identified at the planning stage could be attended to;

(iii) helping to serve on time, effort, energy, money, etc., especially when properly channelled;

(iv) planning, sequencing the curriculum development process and synchronizing various plans accordingly; and

(v) making life easier for a curriculum worker by reducing unnecessary stress.

A critical review was made of what passes as curriculum planning by looking at the work of five scholars as follows:

1. The Tyler Model

The Tyler Model as explained in his book, "Basic Principles of Curriculum and Instruction" asks four fundamental questions to which answers must be sought if the process of curriculum planning is to proceed. The questions are:

(i) What educational purposes should the school seek to attain?

(ii) What educational experiences can be provided that are likely to attain these purposes?

(iii) How can these educational experiences be effectively organized?

(iv) How can we determine whether these purposes are being attained?

The four questions can be reformulated into four simple steps/process by which curriculum is planned and developed, i.e., stating the objectives; selection of learning experiences; organizing of learning experiences and evaluation.

During the workshop, Tyler's model was criticized for

- not indicating what the curriculum developer should do after evaluating the achievement of the objectives;
- not indicating where the objectives come from;
- being simplistic and mechanistic; and
- not indicating the bases or criteria used for selecting the objectives.

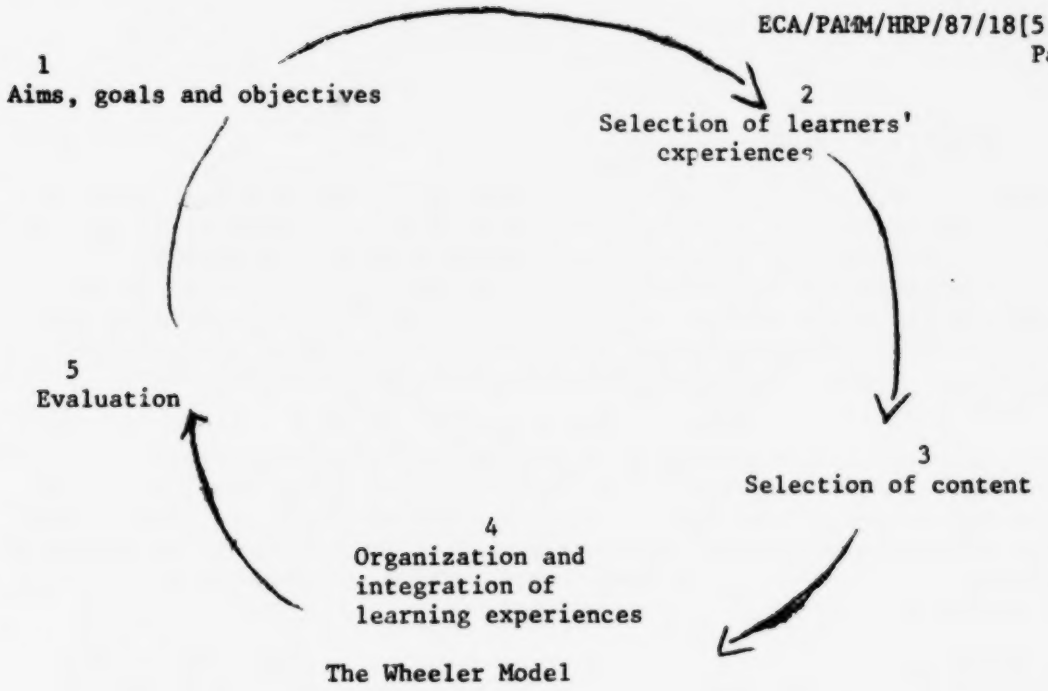
In view of the above shortcomings, Taba made a seven phase model to modify Tyler's model, thus:

- diagnosis of needs;
- formulation of objectives;
- selection of content;
- organization of content;
- selection of learning experiences;
- determination of what to evaluate and of the way and means of doing it.

It was pointed out that both Tyler and Taba's Models were later re-appraised by other educationists and proposals for improvement made, e.g., Wheeler, Kerr and Rawton's Models. The Wheeler Model for instance proposed five phases and not four or seven, viz:

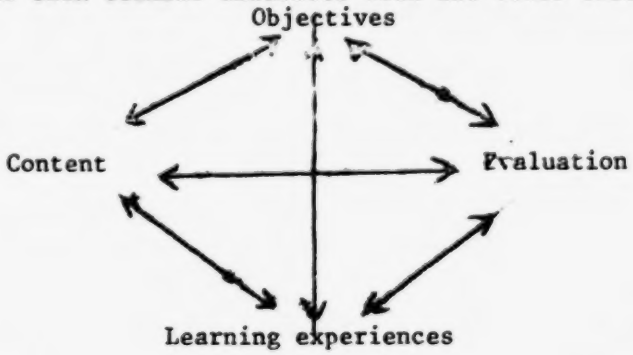
- aims, goals and objectives;
- selection of learning experience;
- selection of content
- organization and integration of learning experiences;
- evaluation.

According to Wheeler, these phases were cyclic suggesting that curriculum development is a continuous process.




The Wheeler Model

Tn numbering the phases, Wheeler was suggesting that curriculum development starts with aims, goals, etc., and ends with evaluation before the process starts all over again. To counteract this argument, Kerr proposed a model very similar to Wheeler in which the five Wheeler's phases were condensed to four viz: objectives, content, learning experiences and evaluation; and each element interacts with the other three in the model thus:




In this model, curriculum development can start at any point in the cycle and can proceed in any of the three directions and that evaluation takes place on the objectives, content and learning experiences.

Having examined some of these models, it was concluded that curriculum is all the learning which is planned and guided by the school whether it is carried out in groups or individually, or inside/outside the school.

C. Objectives in Curriculum Development

During the discussion on curriculum models, a lot was mentioned about aims, goals and objectives. It was necessary therefore to examine the role of these in curriculum development. Thus curriculum aims were defined as statements that describe expective life outcomes based on some value either consciously or unconsciously borrowed from philosophy. They do not directly relate to school or classroom because they are removed from classroom/school situation as the degree of their achievement is determinable only after completion of school.

The term curriculum goals was used to refer to "school outcomes" reflecting either outcomes specified at the individual school level or at the general school system. Curriculum goals are often long-range and removed from immediate classroom assessment. They can therefore be referred to as general objectives in the sense that they focus on activities and are generally broader in character than specific objectives.

In analysing objectives in curriculum planning, it was pointed out that our objective refers to an intended change to be brought about in a learner described in terms of measurable learner behaviour. It must therefore be absolutely specific, more readily observable and measurable so that one can determine whether a learner is making progress during the course.

Examples of the aims and goals of education of various countries were given and analysed and had national policies on education can be used as sources for curriculum aims and goals.

A lot of time was spent on preparing educational and instructional objectives, i.e., the classification of educational objectives, their characteristics and how to formulate/state them in lectures, discussions and assignments.

In a detailed analysis of objectives, it was emphasized that an objective is an intent communicated by a statement describing a proposed change in a learner. It is a description of a pattern of behaviour we want the learner to be able to demonstrate after undergoing a learning situation. The statement of objectives must denote measurable attributes observable in the learner.

In other words, a statement of an instructional objective is a statement which describes an instructional intention. It can only communicate one's intention to the extent to which one has described (i) what the learner will be doing when demonstrating what he has learned and (ii) how one will know when the learner is doing it.

In writing an objective, it was emphasized that one should be able to:

1. identify the terminal behaviour by name, specify the kind of behaviour that will be accepted as evidence that the learner has achieved the objective. This is the performance characteristic i.e., an objective always says what the learner is expected to be able to do.

2. describe the important conditions under which the behaviour is expected to occur. This is the characteristic of conditions i.e., an objective always describes the conditions (if any) under which the performance is to occur.

3. specify the criteria of acceptable performance by describing how well the learner must perform i.e., minimal level of performance. This is the criterion characteristic which often specifies the time limit, the minimum number of correct responses; and defines important characteristics of performance accuracy. It was emphasized that the most important and indispensable characteristic of a useful objective is that it describes the kind of performance that will be accepted as evidence that the learner has mastered the objective. Whatever else a statement may do, if it does not state a performance, it is not an objective.

This was followed by a taxonomic analysis of objectives as classified by objectives as classified by Bloom in the Taxonomy of Educational Objectives into three domains:

a. Cognitive Domain - intellectual behaviours.

b. Affective Domain - Feeling/valuing behaviours (attitudes)

c. Psychomosor Domain - physical/motor behaviours (e.g., typing)

Divisions of the Cognitine Domain were given as follows:

| | | |
|---|---|---|
| Higher than | 6 Evaluation | Student makes value judgement |
| | 5 Syorthesis | Student combines elements into a new whole |
| | 4 Analysis | Student separates complex wholes into parts |
| | 3 Application | Student uses abstractions in particular situations |
| | 2 Comprehension | Student makes elementary use of material |
| Lowest | 1 Knowledge | Student recalls behaviour |

In the deliberations that followed:

Knowledge was defined as the remembering of previosuly learned material; Comprehsnsion as the ability to grasp the meaning of material learned; Application refers to the ability to use learned material in new and concrete situations, Analysis refers to the ability to break down material into component parts so that its organizational structure may be understood; Synthesis refers to the ability to put parts together to form a new whole; and Evaluation is concerned with the ability to judge the value of material for a given purpose.

Illustrative behavioural terms for stating specific learning outcomes were given. For instance under Knowledge a behavioural term defines, describes, identifies, labels, tests, matches, names, outlines, reproduces, selects or states a terminal behaviour. Through individual or group exercises participants practiced formulating objectives according to this hierarchy of educational objectives in the Cognitive domain.

Affective domain introduces objectives which emphasize feeling and emotion such as interests, attitudes, appreciation and methods of adjustment. Five hierarchical levels of eaffective domain were analysed viz:

1. Receiving which refers to the students willingness to respond to a particular phenomena or stimuli.

2. Responding refers to the actine participation on the part of the student to a particular phenomena reflecting interest but not commitment.

3. Valuing refers to the participation of the worth/value in phenomena

4. Organization bringing together different values, resolving conflicts between them.

5. Characterisation at this level, the learner has a value system to the extent of representing a philosophy of life.

Illustrative behavioural terms for stating specific learning outcomes were analysed and examples given, e.g., under Receiving such terms as asks, chooses, follows, describes, gives, holds, etc., were given. Examples of the objectives in Affective Domain according to the above hierarchy were given as follows:

| Hierarchy | Bloom's Categories |
|---|---|
| 1. To help learners develop as resourceful people aware of their own potential | Affective 1.1 |
| 2. To assist in the improvement of health and sanitation in the community | Affective 2.2 |
| 3. To develop in learners on enquiring and experimental attitude | Affective 3.2 |
| 4. To develop national unity | Affective 4.2 |
| 5. To help learners develop minds which can cope with the problems of living in a rapidly changing world | Affective 5.1 |

These were contrasted with cognitive objectives as follows:

| | |
|---|---|
| 1. To help the learners develop the skills of logical thinking | Cognitive 6.2 |
| 2. To help learners to develop to their highest capability | Cognitive 6.2 |

The psycho-motor domain includes those objectives of manipulative and motor skills divided into four ascending levels as follows:

1. Observing - refers to attending of performance of a more experienced person;

2. Imitating - refers to the basic rudiments of the skills required;

3. Practicing - refers to the repetition of the sequences of phenomena as conscious effort decreases;

4. Adapting - refers to the perfection of the skill, although further improvement is possible.

Examples of psycho-motor domain objectives were given as follows:

(a) A learner should be able to operate a bunsen burner;

(b) At the end of a demonstration a learner should be able to repair a bicycle puncture;

(c) A learner should be able to place solids in test tubes using a spatula without any mishap or accident.

Following these examples and explanations, participants were required to do two assignments as follows:

- Re-write the objectives using the characteristics of objectives discussed this afternoon

1. The student will be able to pick a paint colour that matches the colour on a sample of cloth.

2. The pupil will treat others as he or she wants others to treat him or her.

3. The pupil will give the Kiswahili equivalent to a list of English words.

4. The learner will use a screw driver or spanner properly.

Assignment 2-2

Objectives

Using the guide statement for writing behaviour objectives write three congitive objectives for three different content areas.

Using the guide statement for writing behaviour objectives write three affective objectives for three different content areas.

Describe how you would measure student mastery of each of the objectives in item 1 and 2.

Describe the disadvantages of relying completely upon behaviour objectives for developing curriculum for primary and secondary school pupils.

Select some behaviour in the field of your specialization and do a 4 or 5 level task analysis showing prerequisite behaviours. State these as behavioural objectives.

D. Selection of content

In the presentation of this topic, it was pointed out that content is the source of the curriculum; it is the foundation of curriculum because all curricula have content.

When the school specialist speaks of content, he refers to the compendium of information which comprises the learning material for a particular course or a given grade. Thus content was defined as "that which is presented to students or that which is made available to students for possible use".

Content selection requires not only the designation of the laws, principles, generalizations, concepts and facts (the substantive structure) but also specifying the procedures, methodologies, techniques and evaluative tests requisite for using the content (the syntactical or structure).

In curriculum development, comprehending content and its knowledge source allows the curriculum developers to deal with the explosion of knowledge, making the concepts and generalizations the focuses of the content, incorporates vast amounts of knowledge for student learning. Stressing facts in the curriculum presents teachers and students with the task of teaching and learning all facts extant. Organizing content around conceptual loci enables one to decide useful topics and to select pertinent facts. Thus while content (subject matter) is a compendium of facts, concepts, generalizations, principles, rules and theories, it is similar to disciplined knowledge. In fact, content is really another term for knowledge. It is a bunch of knowledge presented to students.

(i) Organization of content

A major reason for organizing anything is to render it comprehensible, and as content is organized so that it is understood and managed conveniently. Content can therefore be organized both logically and psychologically. Logically, it is organized via certain rules to make it manageable. In effect one can organize content by:

- arranging content and drawing directly from the organization extract in disciplined and non-disciplined knowledge;

- organizing it on the basis of societal institutions and activities such as government, agriculture, medicine, theology and philosophy;

- generating content in response to articulate social needs, environmental studies, race relations, population control.

The selection of content can be seen from three angles viz:

(1) Vertical - one can teach the various concepts and principles within a discipline one after the other. Teaching in this case is intra-disciplinary.

(2) Horizontal - teaching the general and oriented principles and at the same time bringing out the numerous applications and aspects of each principle as manifest in the discipline being taught. This teaching is intra-disciplinary and encourages transfer,rrenders itself to solution of new problems and is open to application of concepts and knowledge.

(3) Transverse - choosing situations which cannot be fitted into a single column or row, but which bring concepts and principles determined by the situation. This is multi-disciplinary or thematic, the teaching of which often involves several disciplines at once as well as various organizational principles.

(ii) Criteria for selection of content

Having looked at the selection of content from three angles as discussed above, the workshop examined the criteria for selection of content. These criteria are often influenced by ones' conception of the curriculum formulated in the first stage of curriculum building. A grinding principle for content selection is that of assisting the learner to attain maximum self-sufficiency in the most economical manner. In this regard therefore the following criteria for content selection were discussed:

(1) Validity - content must be closely related to goals. The content chosen must contribute to the attainment of goals. It should also be authentic, and as such it is necessary to keep content under constant scrutiny.

(2) Significance - since every objective must have a corresponding content, it is necessary to ensure that the content chosen enables the acquisition of a wide range of objectives.

(3) Learnability - content chosen should be within the learners' reach and ability so that they can grasp the items and topics set.

(4) Feasibility - Is the material being selected feasible? Can the content in effect be taught with the available resources; or is there anything in the environment which will make it impossible for the content to be taught?

(5) Continuity and sequence - It is important to consider not just the vertical continuity and the sequencing of content. It is also necessary to consider the smooth linkage from one learning experience to the next one, i.e., there is need for vertical and horizontal relationships in selecting content.

(6) Usefulness - the relevant questions to ask would be: To whom is the content useful and where, i.e., within or without and for when? In other words, is it useful now and in the future or is it just for the immediate use?

(7) Human development - content should be adjusted to the level of learners. Ensure that content in this respect is related to the attainment of objectives which have been set.

(8) Relevance - content should be relevant to the needs and interest of learners and should contribute to the fulfilment of the learners mental, intellectual and social and moral development.

(9) Balance - there should be a balance of content both in terms of breadth and depth, i.e., how much, how to go and how deep and should go in the study of a subject. There must be a reasonable balance in terms of sequence in which each of the content elements are taught, and a balance between individual needs, interests and mental maturity; and between the time allocation for each in the curriculum and the content.

(iii) Sources of content

During discussions it was pointed out that a lot of criticism has been labelled against present day curricula. It was emphasized that curricula in many African countries are in need of a rethink or overhaul to be in line with the demands of society and the needs of individuals.

It was also pointed out that curriculum could be described as a selection of what should be learnt from the culture of a society. It was therefore important to select from the culture, what to include in the curriculum. In this regard a multi-disciplinary approach to the development of the curriculum was to be recommended as demonstrated in Figure 1.

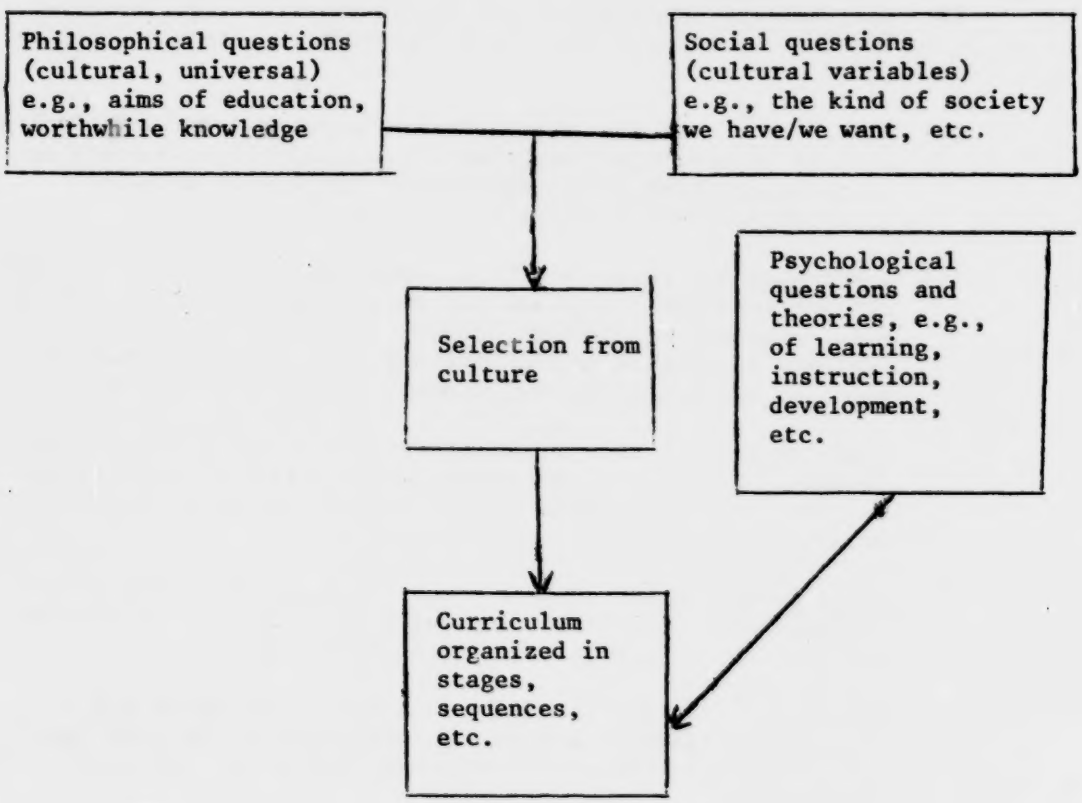

Philosophical questions (cultural, universal) e.g., aims of education, worthwhile knowledge
Social questions (cultural variables) e.g., the kind of society we have/we want, etc.
Selection from culture
Psychological questions and theories, e.g., of learning, instruction, development, etc.
Curriculum organized in stages, sequences, etc.

Figure 1: Curriculum selection from culture.

The issues raised in Figure 1 were reduced to three sets of factors which influence the sources of curriculum and its development, viz:

- What is educationally worthwhile;
- What is regarded as relevant; and
- What is teachable.

These are shown diagramatically in Figure 2.

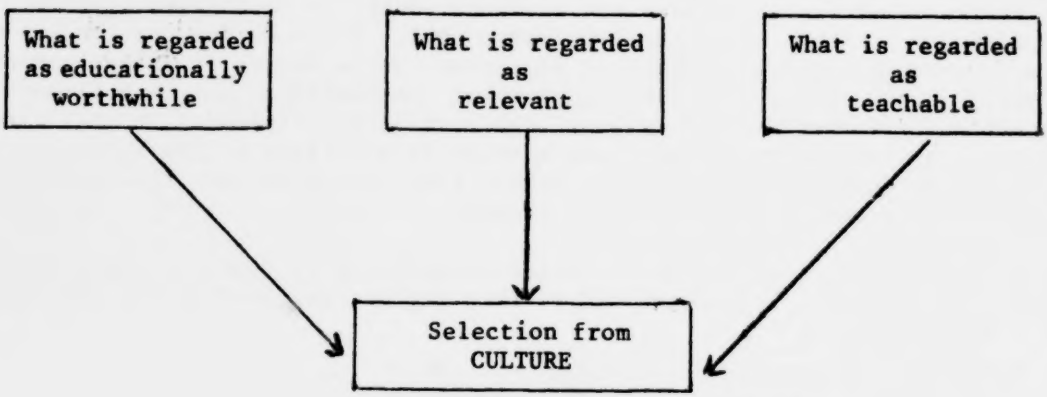

What is regarded as educationally worthwhile
What is regarded as relevant
What is regarded as teachable
Selection from CULTURE

Figure 2: Sources of content

(iv) Agents of content reform

It was pointed out that when a discrepancy exists between what is and what should be, a reform of content may be necessary particularly by those who have the power, the authority or opportunity to change the curriculum from what it is to what it should be. Such agents are the initiators, the decision makers and the curriculum designers.

The initiators could be from a particular discipline who have realized the need for correcting a discrepancy, e.g., subject specialists or employers who have seen a discrepancy between the skills required and what is taught in the schools. Decision makers have to make a decision about what it is that should be changed and what it is that should be included in the curriculum to remove a discrepancy. As regards the curriculum designer, aims once spelt out have to be implemented and translated into content specifications. Thus the curriculum design team should as far as possible include people of considerable insights into the development of education.

(v) Coherence and integration of content

Four factors which appear essential to the harmonious integration of educational actions were considered:

(a) focus on the ultimate goals common to the entire education system;

(b) a structure providing for interaction and communication between the various educational sub-systems;

(c) a unifying framework; and

(d) a mechanism for adjusting and regulating the various educational sub-systems.

Focussing on the ultimate goals in the curriculum is achieved first at the level of educational policy and then in the implementation of the curriculum. Curriculum too must provide the unifying force or framework both for content and the methods.

Integration calls for a clearly defined educational policy and to focus all aspects of education on aims and goals of education in a given country. Such integration can either be vertical or horizontal. Vertical integration can be achieved through the organization of education into a series of phases coming one after another but overlapping and forming a harmonious whole. Horizontal integration calls for the use of knowledge, skills and attitudes in real life situations or learning situations where there is a balance of learning activities between school and out-of-school time to ensure that the learner is adequately prepared for a life in the community.

Following presentations and detailed discussions on content, assignment number 4 as contained in Section VIII of this report was given to the participants.

E. Selection of learning experiences

The first task in presenting this topic was to explain the term "learning experience". First, it was pointed out that learning is change within the individual not something which is done to him/her. In a classroom the instructor does not transmit learning. In effect he helps the learner to acquire or change some behaviour through interactions between the learner and the external conditions. Looked at in this way, a learning experience refers to the interaction between the individual learner and the external conditions in the environment to which the learner can react. Learning takes place through the active participation of the student. It is what he/she does that he/she learns, and not what the teacher does.

Learning experience therefore involves the interaction of the student and his environment in which the student participates actively. A teacher can provide an educational experience through setting up an environment and structuring the situation so as to stimulate the desired type of reaction. The teacher's method of controlling the learning experience is through the manipulation of the environment by setting up stimulating situations to evoke the desired behaviour.

Having defined a learning experience, the workshop examined at length the criteria for selecting learning experiences viz:

(1) Validity - experiences selected should be related to the desired aims, objectives and overall goals of education. In other words experiences chosen are valid in as far as they change the learner in the desired direction, or that they produce the desired outcome.

Emphasis in producing valid experiences is particularly necessary in the case of what are sometimes called the "intangibles" of education, i.e., the development of particular character traits and attitudes, beliefs and values. In this case validity of an experience should be a matter of fact rather than of opinion.

(2) Comprehensiveness - while the criterion of validity demands that the experiences which have been provided should actually make some contribution towards the stated objectives, comprehensiveness requires that valid experiences must be provided for a wide range of objectives, because objectives without experiences make no contribution to behaviour change. As long as curriculum objectives embrace differing or various areas, they must have corresponding experiences, and this is what comprehensiveness is about.

(3) Variety - since learners need learnings of many kinds, learn at different rates and through different methods, a variety of learning experiences should be presented to learners; the greater the variety of experiences, the better the chances of achieving the experienced outcomes. Since the curriculum has a wide range of objectives, it is also necessary to have a wide range of experiences and this also caters for different abilities.

(4) Suitability - experiences should be suited to the general level of the learners and to the particular needs of the individuals within a learning group. In this regard learning activities should be arranged in an developmental continuum in a pattern and at a rate which is unique for every individual, i.e., the experiences must be suited to the physiological, psychological and mental development of the individual and his needs.

A particular learning experience should therefore be made available when the learner is ready to receive it.

(5) Pattern - refers to the relationships between measured characteristics of an individual at a given time or as the succession of changes which occur over time. In a discussion of subject syllabuses these two aspects of pattern appear as problems of horizontal and vertical integration and should be considered in relation to organization.

(6) Balance - the school should provide for the basic minimum of experiences in all major aspects of development and the balance of activities must vary from individual to individual at different levels of development.

(7) Continuity - refers to the fact that learning is a continuous process, the organism and functioning whole. Experiences must therefore be related both horizontally and vertically so that learning does not suffer.

The workshop considered other factors for considering learning experiences, but not as exhaustively as the above. These included practical continuity, cumulation; repetition of experiences; multiple learning, relevance to life, significance and the learners participating in planning. These factors like others were fully explained in the course manuals used during the workshop.

Following an explanation of the foregoing issues, participants worked on Assignment No. 3 as shown in Section VIII of this report. This assignment like all others was reviewed and assessed by the tutors of the course.

F. Curriculum Design

In presenting this topic, it was emphasized that a lot had been written about "curriculum" and literature was full of writings about the definitions and concept of curriculum; curriculum design, curriculum system, etc. These definitions and terms were thoroughly reviewed during the course so that the concepts being discussed were not to be misunderstood.

It was emphasized that the word curriculum may be used in three ways: as a curriculum, i.e., as a written document; as the name of a system of schooling; and as a title of a field of study. In this regard, curriculum theory contains two primary dimensions or sub-theories, viz: (a) curriculum design and (b) curriculum engineering. The definitions of these two sub-divisions of curriculum are given later in this section of the report.

The theoretical issues associated with the concept of curriculum as a document fall under the heading of Curriculum Design defined as "the substance and organization of goals and culture content so arranged as to reveal potential progression through levels of schooling. In this regard, curriculum design becomes a focal point in all curriculum thinking."

The workshop identified three notions of curriculum design as:

(i) an arrangement of selected and ordered learning outcomes intended to be achieved through instruction;

(ii) an arrangement of selected and ordered learning experiences to be provided in an instructional situation; and

(iii) a scheme for planning and providing learning experiences.

Given these notions, curriculum design must have at least a minimum of three characteristics, viz: (a) it must be a written document, (b) it must contain statements containing goals, for the school for which the curriculum is designed and (c) it must contain a body of culture content that tentatively has the potential for the mobilization of the goals.

In addition, a curriculum design must contain a statement of intention for use of the document as a guide for planning instructional strategies and it should also have an evaluation scheme. In shortthen, curriculum should be conceived as a written document depicting the scope and arrangement of the projected education programme for a school.

(1) Elements of a curriculum

Curriculum is a written document because it is composed of elements with form and structure. Schooling has two sub-systems viz: (i) curriculum and (ii) instruction. The content of a curriculum are dependent on whether both curriculum strategy and instructional strategy are encompassed in curriculum design. However if the aims of schooling are to be achieved, it is necessary to base curriculum design on:

(a) WHAT SHALL WE TEACH IN SCHOOLS?

The expression of those answers to this question may be termed "Curriculum" and their form and arrangement termed "Curriculum Design".

The second set, instructional strategies, is conceptualized around individual teachers and groups of learners in response to the general question:

"HOW SHALL WE TEACH?

This question brings into focus what curriculum design includes, i.e., some of the elements of curriculum:

- an arrangement of objectives

- subject matter chosen (i.e., content)

- specific action plans for teaching

- all forms of instructional materials to be used

- time, schedules

- activity descriptions, etc.

These elements were discussed by looking at curriculum design as composed of four key elements, i.e., four key questions:

(1) For whom is the course being developed?

(2) What do we want them to learn?

(3) How is the skill best developed?

(4) How do we determine the extent to which the learning has been achieved?

It was then pointed out that:

(a) the first question relates to the characteristic of the learner;

(b) the second relates to the objectives of the course/ programme;

(c) the third focuses on the teaching - learning methods; and

(d) the fourth is evaluation.

(2) Curriculum Design: Definitions and Propositions

A number of definitions and propositions associated with curriculum design were analysed viz:

(a) A curriculum is a written plan depicting the scope and arrangement of the projected educational program for a school. Optimally, the curriculum should contain (1) a statement of intention for use of the document as a guiding force for planning instructional strategies, (2) statements outlining the goals for the school for which the curriculum was designed, (3) a body of culture content that has the potential for the realization of the goals, and (4) a statement of an evaluation scheme for determining the worth and the effectiveness of the curriculum and the curriculum system.

(b) Curriculum design is the substance and organization of goals and culture content so arranged as to reveal potential progression through levels of schooling.

(c) A curriculum system is a system for decision making and action with respect to the three primary curriculum functions: curriculum planning, curriculum implementation, and curriculum evaluation.

(d) Curriculum engineering consist of all the processes and activities necessary to maintain and improve a curriculum system including leadership by persons occupying such positions as superintendent, principal, and curriculum director.

(e) Curriculum as a field of study refers to the continuous exploration of curriculum design, curriculum engineering, their historical antecedents, and the necessary research and theory building to further explain them.

Curriculum design was defined above as the substance and organization of goals and culture content so arranged as to reveal potential progression for learners through levels of schooling. So used, the word design is a noun rather than a verb form, and consequently, the language used to describe design must be focused upon an object - the curriculum. By choosing to use only the noun form, we assign the verb form designing to the processes of curriculum planning. This means that curriculum planning groups must select, or create, a design for the curriculum they plan.

(f) Design definitions

The key term for curriculum design is a curriculum. Since it was defined above, it need not be repeated here, but all of the following definitions expand upon the concept of a curriculum.

(i) Curriculum contents refer to all of the components of a curriculum. The term is used here in much the same sense that a table of contents is used to depict the chapters of a book.

(ii) Goals are those statements within a curriculum that indicate the needs toward which the school is to strive.

(iii) Culture content is that portion of man's total knowledge that is selected to be used in the school as a means of achieving the goals that have been set forth. Culture content may be classified in three categories. Cognitive culture content consists of the substantive elements of our culture reflected through key concepts and generalizations derived from man's accumulated knowledge. Affective culture content consists of those elements of our culture that are value-oriented. Inquiry and skill culture content consists of those processes and ways of behaving essential for communication and for conducting inquiry into problems of the culture. The syntactics associated with the basic disciplines are included here.

(iv) Subjects are simply ways of organizing culture content into homogenous realms for teaching purposes. Mathematics, social studies, language arts, science, music may be spoken of as subjects.

(v) Disciplines are basic branches of knowledge that are organized to facilitate their instruction and their development. Physics, history, philosophy, mathematics, anthropology are examples.

(vi) Processes is a general term for inquiry processes, syntactics, skill behaviours, and other learning processes. Herein, they are treated as culture content in equal states with cognitive and affective culture content.

(vii) Fusion is a process of reducing the number of realms of culture content to be included in a curriculum by integrating two or more extant realms, frequently cited results of fusion are the social studies, the language arts, persistent life situations, molar problems, and the core curriculum.

(viii) The term scope is used to refer to the magnitude of goals and culture content in a curriculum. Magnitude may be thought of as breadth at various levels for which curriculum entries are pertinent as well as the breadth of the entire curriculum for a school.

(ix) The term sequence is used to speak of the ordinal arrangement of the culture content elements in a curriculum. The more severe consideration on sequence occurs when certain culture content is prerequisite for others. Therefore, sequential or ordinal arrangement is important within and between levels for which the curriculum is designed as well as for the entire school.

(x) Articulation is a process of relating the realms of culture content within and among the various levels of school organization. Articulation is necessary both vertically and horizontally within that organization.

(xi) Levels of organization refers to the manner in which pupils are organized for purposes of instruction. Conventionally, these levels have been grades. In a non-graded situation, the levels may have other names.

(xii) Rationale refers to the explanation for the organization of any given realm of culture content. if a realm of culture content is social studies, the rationale is the explanation for the selection and distribution of its elements. If a realm is to be identified as molar problems, the rationale must explain the selection and scope of those problems.

(3) Design Propositions

In addition to definitional statements, the theory of curriculum design can be expanded by the formulation of propositions. A proposition may be described as a formal statement affirming or denying something about a subject. Such statements as postulates, generalizations, and hypotheses were indicated to be special cases of the proposition. By way of organization and example the following propositions were discussed:

Proposition 1

A curriculum is a written document

A curriculum must be a written document in order for maximum use to be made of it. A curriculum is a conceptualized plan for the total educational programme of the school. As such, it becomes the central force for the development of instructional strategies by all teachers who teach in the school. A curriculum should be constantly under appraisal and revision. It must be written to be so used and treated.

Proposition 2

The major purpose for having a curriculum is to establish a basic environmental structure from which teachers will develop teaching strategies for specific classroom groups

The essence of the basic environmental structure is reflected in the form and arrangement of curriculum design. Teachers will provide for learning opportunities and instructional materials in their instructional strategies. The basic environmental structure described in the curriculum provides a holistic base for all instruction.

Proposition 3

> To be most effective as an instrument for directing instruction, a curriculum should optimally consist of four parts: (1) a set of directions for teachers about the use of the curriculum within the curriculum system, (2) a listing of the educational goals for the school, (3) a body of culture content selected in the enticipation that the culture content will be instrumental in the achievement of the designated goals, and (4) a scheme for the evaluation and revision of the curriculum.

This proposition presents what we consider to be the optimal ingredients of a curriculum. There should be no need for further explication here other than to emphasize the dynamics of the design. Goals are selected. Realms of culture content believed to be useful in the achievement of the goals are selected and organized. The curriculum is used as intended. The curriculum is evaluated, thus providing data for revision of the several parts. Revision data cause the goals, the culture content, and the use of the curriculum to be reconsidered. In this way, a dynamic cycle of curriculum analysis is invoked.

Proposition 4

> A curriculum should contain four categories of goals: cognitive, syntactical, affective and applicative.

The statement of educational goals in a curriculum must be sufficiently broad to encompass the full range of the intended educational programme. It assumes that any educational programme would anticipate cognitive, syntactical, affective and applicative learnings. Cognitive goals would refer to the basic concepts of knowledge, key ideas, generalizations, principles, and laws. Syntactical goals would refer to modes of inquiry for solving problems in the areas of organized knowledge such as observation, classification, inference, prediction, as well as the psychomotor skills of communication and expression. Affective goals would refer to those values, beliefs, emotions, attitudes, and appreciations deemed important for inclusion in the curriculum. Applicative goals would refer to those aspirations for learnings associated with social and personal problems of living, particularly problems of demanding that knowledge and skills developed in the first three categories be applied.

Proposition 5

> The culture content of a curriculum is selected and organized because that culture content is believed to be useful for teachers to use in achieving the stated boals.

Our culture content has become so massive that, to a very great extent, the process of curriculum planning is one of selecting from the total mass. The governing criteria for selection are the evolving purposes of schools. We should never forget that the increasing tempo of generating knowledge, coupled with the constantly changing social environment, demands consistent evaluation and subsequent modification of our response to the question of what should the schools teach. Furthermore, the selection of culture content for the curriculum is a much too important decision to be left to the whimsies of individual teachers at the level of planning instructional strategies. Curriculum planners are obligated to conceptualize the educational programme for a school by determining goals and devising and organized body of culture content they believe will be useful in the attainment of the goals.

Proposition 6

> Goals, or objectives, and related culture content for schools are political decisions. Curriculum planners must verify those they use through political channels.

The policy making agency for any school district is the Ministry of Education. Curricula for the schools under the jurisdiction of the Ministry of Education are fundamental policy of the district. Therefore, the agency for screening and approval of all curriculum decisions is the school board. Likewise in every educational institution other than public elementary and secondary schools, there will be some policy-making group bearing responsibility similar to the school board for the curriculum for that institution. This proposition is axiomatic for all decisions relative to the contents of a curriculum.

(4) Approaches to Curriculum Design

This is sometimes referred to as organizational patterns, i.e., the way curricula acquire their names from their design. In effect the issue of approach is essentially one of focus or orientation. What gives a curriculum its orientation are the factors or variables which affect or influence it.

It is necessary to have an approach to the development of a curriculum because learners cannot learn everything and because there are different ways of organizing curriculum content for instructional purposes.

During the workshop, it was emphasized that there are many approaches to curriculum development, viz:

(i) The separate subject design/approach

(ii) The Broad Fields Approach

(iii) The structure of disciplines curriculum design

(iv) The social process or social functions approach

(v) The persistent situations approach

(vi) The activity curriculum approach

(vii) The cognitive process approach

(viii) Correlated curriculum approach

(ix) The core curriculum approach

(x) The experience curriculum approach

(xi) The emergent curriculum approach

(xii) The learner-centred curriculum approach

(xiii) The content centred curriculum approach

(xiv) The competency-centred curriculum approach

A few of these curriculum designs or approaches are described hereunder:

(a) The Cognitive process approach

This refers to the mental skills used in handling and dealing with information. It is concerned with refinement of intellectual operation. It is also the sharpening of intellectual processes and developing a set of cognitive skills. It is based on the idea that learning takes place through certain intellectual process.

(b) The Core/Common learning approach

This means common learning or a portion of the curriculum required by all learners. According to Taba, Core curriculum programmes are organized around one of the following: (i) aim of bringing about integration of learning through verification of subject matter; (ii) attempt to relate life and learning; (iii) use of problem solving methods. This approach is often difficult to use because it requires competent trained staff.

(c) Separate subject design

Curriculum planners should create curriculum designs that should capitalize upon the logical orderliness of the subject and by providing integrated units of work irrespective of school subject.

Content is arranged by specific subjects representing a specialized and common area of content systematized on a chronological basis as follows:

- prerequisite learning carefully noted;

- stress on whole to part mastering;

- deductive learning

Teacher imparts information, while learner receives it. In this each subject is supposed to have a distinctive kind of content.

(d) The structure of disciplines design

It is an extension of the separate subject design, but the discipline design allows students to be active in processing information.

A discipline design identifies specific realms of content; the rationale for content selection is made known; selection criteria are identified and the crucial concepts of the discipline are deleanated in a classification of content structure.

Structure of discipline is key aspect of discipline design. Emphasis on structure of discipline as it is crucial as it allows for comprehension rather than memory (subject matter).

This may be criticized because students do not have a similar type of learning style. Students are supposed to adapt to the curriculum rather than the curriculum adapting to their needs.

(e) Content-centred or process-centred design

Arose out of the original dichotomy of content and process; about whether teachers should be predominantly concerned with a body of the content to be learnt by pupils or with pupil learning processes.

Answer partly to be found in the shifting emphasis from content to be learnt to the learning process.

A distinction has often been made between the content of a subject and the behavioural processes of applying elements of the content of subject to the solution of social and practical problems. It is an issue of the content of the discipline and the modes of enquiry associated with them.

(f) Correlation design

Here content is organized by correlation, i.e., similar topics or subjects are scheduled for simultaneous study while retaining their separate identities.

For instance, a biology teacher would make reference to Maths when teaching his subject for Maths information related to biology, or treat a subject matter according to a theme or general problem.

This design is not very often used because teachers in schools do not feel comfortable breaking from the traditional separate subject organization. Few educational materials are organized to support the correlated design.

(g) Broad fields design

Perhaps known asfused design gives byond the correlated design by clustering together related subjects around some shared organizer to avoid compartmentalization.

Subjects like social studies allow students to comprehend the interrelationships among content and to allow for linking content to daily life.

This approach provides for orderly and systematic exposure to the essentials of the culture. It allows for integration, but it can lack depth of treatment and can be seriously fragmented.

(h) Learner centred design

The content emphasizes on the learner in terms of their needs, individual development, their interests, motivation and reasons for attending the subject.

We draw on what we know about human growth and development and learning.

This approach calls for active participation of the learners rather than on the teachers. It encourages learning by doing.

But students interests may not be valid or long lasting or may not reflect societal needs. Also how to continue learning based on students interests may cause a lot of difficulty.

In the discussions that followed, it was emphasized that whatever approach was used, the following questions could prove very useful:

(i) Is the curriculum developed in tune with the philosophy, problems, needs, concerns and cultural realities of the nation where it is to be used in terms of content, instructional strategies and objectives to be achieved?

(ii) Does the curriculum have balance of breadth and depth? Is a wide range of subject matter areas covered superficially or is a small area of subject matter covered in depth?

(iii) Does the curriculum so developed make it possible for the achievement of a wide range of objectives covering the three major areas of human behaviour - cognitive, affective and psychomotor domains?

(iv) Is the curriculum appropriate to the abilities (intellectual) needs and interests of the learners for whom it is intended, and

(v) Does the curriculum reflect contemporary scientific thinking and is this knowledge fundamental to the subject matter area under consideration?

(5) The Curriculum Developer

In response to the above questions, the curriculum developer should as far as possible:

(a) be aware of the wide range of the alternative curriculum approach which are avilable;

(b) appreciate that no approach is perfect; each approach has its strengths and weaknesses;

(c) understand that in a given culture, curriculum approaches need to be modified or changed if and when circumstances warrant it;

(d) realize that in determining the best approach, it is not an easy task as it requires an in-depth study of the culture under consideration, and

(e) realize that there is a good deal of overlap of elements from different approaches.

## G. Instructional Design

Having considered curriculum design, the workshop considered the key elements in the instructional design process.

### (a) Key elements of the Instructional Design Process

There are four fundamental elements in the Instructional Design process:

(i) For whom is the course or programme being developed?

Characteristics of the learners.

(ii) What do you want the learners to learn or to be able to do.

The objectives.

(iii) How is the subject content or skill best learned?

Teaching - Learning Methods and Activities.

(iv) How do you determine the extent to which the learning has been achieved?

Evaluation.

These four fundamental elements: learners, objectives, methods and evaluation form the framework for systematic instructional planning.

### (b) The Complete Instructional Design Plan

In a comprehensive instructional design plan we may consider ten elements as follows:

(i) Assessment of learning needs for the design of an instructional plan.

State the goals, constraints and priorities which must be recognized.

(ii) Selection of topics or job tasks to be treated and indication of general purposes to be served.

(iii) Examination of the characteristics of the learners which receive attention during the planning.

(iv) Identification of subject content and analysis of task components relating to the stated goals and purposes.

(v) Statement of learning objectives to be accomplished in terms of subject content and task components.

(vi) Design of teaching and learning activities to accomplish the stated objectives

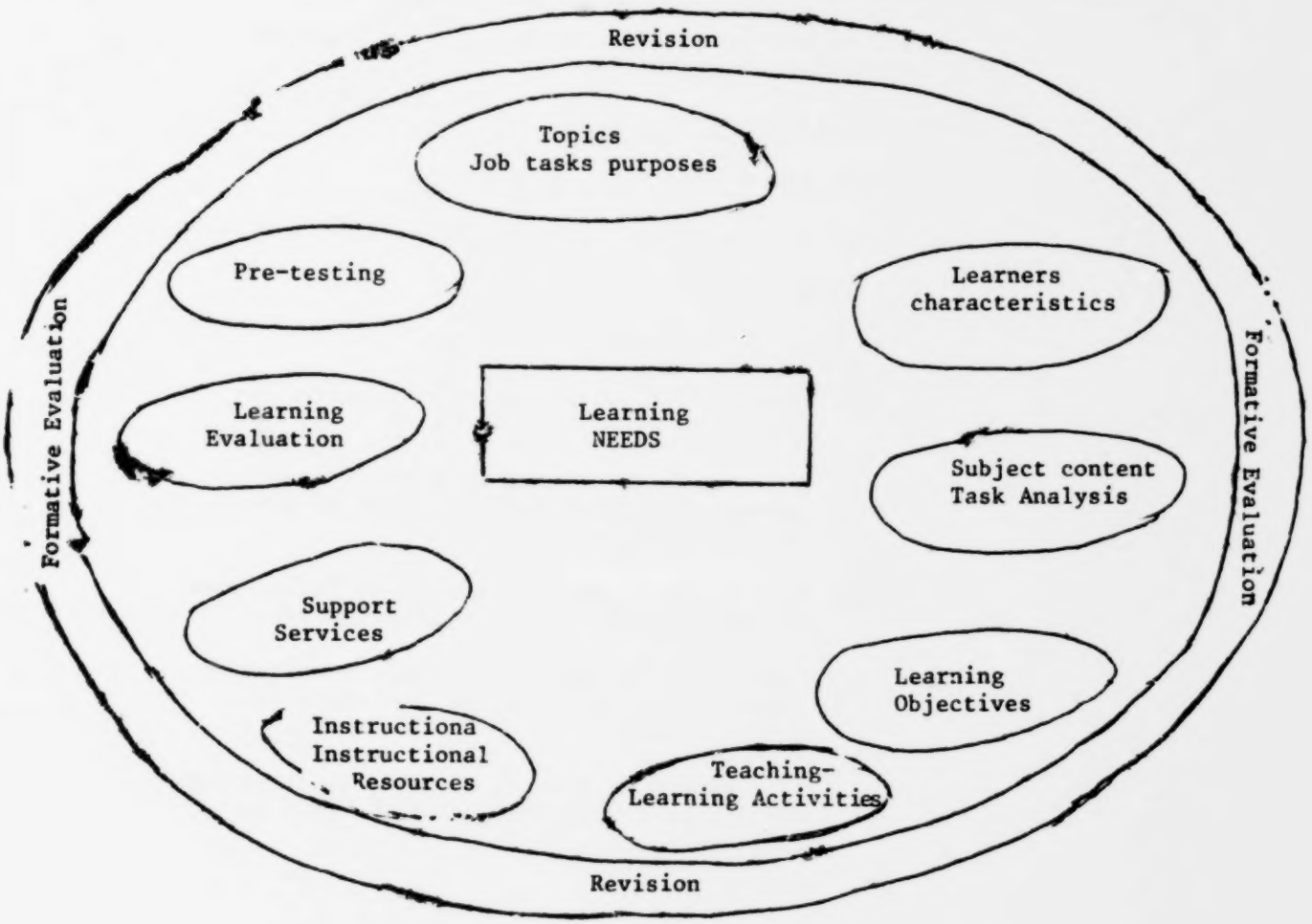
(vii) Selection of resources to support the instructional activities.

(viii) Specification of support services required for developing and implementing activities and acquiring or producing materials.

(ix) Evaluation of learning and outcomes of the training programme.

(x) Determination of readiness of learners to study the topic: Pretest.

(c) Diagrammatic Representation of Instructional Design Plan



(d) Another Instructional Design Plan

(i) A philosophical statement or statements

(ii) Rationale for the programme

(iii) The goals

(iv) The objectives

(v) Content

(vi) The Instructional Strategies

(vii) The learning experiences

(viii) An indication of the environment in which the curriculum content is to be experienced

(ix) The support materials and personnel required for the particular student learnings

(x) How to evaluate student progress; both formative and summative evaluation

(e) Course Level Curriculum Design

- Determine Course structure and sequence

(i) List all the topics to be included in the syllabus

(ii) Specify objectives for each topic

(iii) Examine requirements for ordering

(a) State prerequisite behaviours required for each topic or objective.

Does the topic or unit or objective require prerequisites from any other part of the course or subject?

(b) List seasonal topics which can be facilitated by proper scheduling by time of the year.

(c) List topics or objectives that necessitate a great deal of practice and repetition to retain or master.

(d) List topics or objectives which can facilitate, complement or otherwise enhance topics in other subjects.

(iv) Arrange the topics and objectives in a teaching sequence.

(v) Re-examine the objectives to see if:

(a) The sequence of objectives throughout is appropriate

(b) Find out if there are any missing objectives

. Cognitive
. Affective
. Psychomotor

(c) Link objectives between topics

(d) Facilitate objectives or enabling objectives

(vi) Analysis and validation of the structure and sequence by:

(a) Other scholars

(b) Teachers

(vii) Analysis of course objectives

(a) Classification of objectives by an accepted taxonomy

(b) Review of the classification for different levels of learning

(c) Restate and add any objectives which can help to meet the desired goals and overall objectives of the course

- Implications of the course organization

(i) Do the specific objectives require a particular learning strategy?

(ii) Do the specific objectives require a teaching strategy?

(iii) Do the specific objectives require special teaching - learning materials?

(iv) Make suggestions for each of the following:

(a) Teaching strategies

(b) Learning principles

(c) Teaching learning materials

Following this analysis on curriculum design, participants were required to do assignment No. 5 as indicated in Section VIII of this report. Each participant was required to design a curriculum suitable for his/her country using the various approaches discussed. This assignment took three weeks to complete and constituted a major output of the workshop. Each participant was expected to take home the finished curriculum design for further refinement upon return to the country of origin.

There were also country reports on curriculum design from the following countries: Ghana, Ethiopia, Mauritius, Malawi, Liberia, Botswana, Zambia and Tanzania. Presentation of these reports were very detailed although no handouts were given to the participants. The presentations were intended to share experiencs of what was happening in each of the countries represented.

H. Curriculum Design Problems: Developing scope and sequence

Among the major problems of curriculum design are scope and sequence. During the workshop it was pointed out that the selecting and organizing of content requires contemplating several key problems - of which scope and sequence are.

Scope refers to the breadth and depth of the content. It is not therefore sufficient simply to list content and the major topics to be covered because scope is a continued issue for knowledge production is dynamic. Scope of curriculum content is regulated in part by the goals and objectives generated during the diagnosis state in curriculum planning.

On the other hand, sequence deals with the question of what content and experiences are to follow what content and what experiences. Sequence addresses the problem of ordering the curriculum offerings so as to optimize the student's learning.

During the workshop, it was emphasized that the criteria used for selecting content should also be used for learning experiences to determine scope. As regards sequence emphasis was placed on the fact that sequence centres around timing and placing the material selected on the WHAT? It then becomes necessary to ask the questions.....

- "When is it the most appropriate time for learners to acquire the skill needed?"
- What must follow each topic and why must this be so, i.e., why should gopic B follow topic A?
- When should the material in unit 1 be taught to the learners.

It was therefore recommended that the following guidelines could prove useful in developing scope and sequence:

(i) Arrange intellectual skills from simple to complex

(ii) Ensure that prerequisite learnings are accomplished

(iii) Proceed in chronological order

(iv) Follow logic of the discipline

(v) Topics should be word and concept related

(vi) Topics to be learner-related

(vii) Topics to be inquiry-related

(viii) Topics to be utilization-related

(ix) The need for double sequence

(x) That the content should be put into a classification system, i.e., hierarchical, psychological and logical classification

It was also emphasized that the main purpose of scope and sequence was to:

(a) Organize content according to some rational sequence for learning;

(b) Develop topic titles which can have meaning to curriculum specialists;

(c) Provide an overall map of what should be learned and when;

(d) To provide a guide to curriculum writers in preparing text-books and teachers guides; and

(e) Provide evaluators with a guide for developing instruments for measuring student outcomes.

During the workshop, an assignment on scope and sequence (Assignment 5 in section VIII of this report) was given to participants which lasted two weeks developing a scope and sequence chart.

During the assignment it was emphasized that an analysis of a syllabus and the development of a scope and sequence chart should take the following into account:

(i) Scope - select the topics to be taught; how much content to be covered at each grade level, i.e., concern is over the breadth and depth of content at each cycle of education.

(ii) Sequence - Topics should be arranged in that order which facilitates teaching and learning for instance, from simple to complex; whole to part; and chronologically.

(iii) Continuity - There should be gradual development of each topic at successive grade and there should be no gaps or omissions at each successive grade. Continuity charts with the continued presence of curriculum elements at each successive grade without omission of the topic.

(iv) Articulation - refers to the relationship between and among the topics; the existence of interface between one content area and another, and relating school learning to current life outside the school or the world of work.

(v) Balance - there must be a reasonable balance in curriculum content in terms of order in scope and sequence; balance between breadth and depth of content for each topic and each grade level, and the time available for teaching the topic; a balance in the time allocated to each subject in the curriculum or each topic; and a balance between the extent to which the curriculum provides for the backward, the gifted and the average learners; and a balance between theory and practice.

(vi) Integration - relate content of one subject with content of other subjects. It is important to interrelate content themes, ideas and facts in order to show the unity or oneness of knowledge.

## I. Developing Instructional Materials

During the workshop it was pointed out that the term "educational materials" covers both the hardware such as apparatus, equipment and teaching aids; and software, e.g., books, textbooks, stationery and teaching aids.

From the point of view of administrative practice accountancy, budget control and regulations, an analytical matrix is needed which is determined by criteria pertaining to the type of material and equipment, the cost, duration and modes of financing as well as the economic factors related to the mode of production and existing national development strategy. Again emphasis was placed on the fact that instructional materials should be seen as teaching aids or as powerful means of renewing the education system and in facilitating innovation and promoting change.

In the arrangement of instructional materials particularly the learners textbook and the teachers' guide, the main problem for the administrator is that of increasing the quality of the material whilst decreasing the cost. These costs can be:

(i) those related to design and conception including experimental costs;

(ii) production costs;

(iii) distribution costs;

(iv) costs incurred in use, e.g., promotion costs, teacher training, teachers' guides, etc.

The constraints affecting costs and quality depend upon different decision makers, e.g., planners, school administrators, curriculum specialists, authors, editors, printers, etc. In effect, the following factors should be taken into account in the development of instructional materials, viz:

(a) Administrative Decisions which affect production costs as regards

(i) planning and programming;

(ii) decisions about production structures;

(iii) legislation on the choice and selection of school textbooks;

(iv) intended duration for the use of textbook.

(b) Educational choices to be made

(i) definition of the optimum number of pages for a textbook to be used at a given grade or level;

(ii) number of textbooks for each given level;

(iii) care in presentation, page layout and legibility;

(iv) use of colour;

(v) addition of notes;

(vi) use of original illustrations;

(vii) mode of utilization of textbook; (collective or individual)

(c) Technical points

(i) Full employment of available resources within the framework of the national publishing sector;

(ii) Choice of format;

(iii) Choice of production methods;

(iv) Quality of paper;

(v) Strength of binding and cover;

(vi) Judicious planning and production;

(vii) Division of tasks between:

(1) education sector (planning, testing prototypes, defining specifications; controlling quality, management distribution and follow-up; and

(2) the publishing sector, distributors and users.

A well orchestrated amanagement and administration should allow for: higher investment in developing materials at the levels of design and testing and learner verification before mass production; control and reduction of elements of little use to improve the effectiveness of the material; better organization of markets and of information on materials available and of training activities for the user.

It was emphasized that the preparation and development of instructional materials could be looked at from the management point of view focusing attention on four functions, viz: planning; supply and provision; distribution or delivery; and control of utilization.

Further there is need to consider such factors as maintenance; training of administrators and users, and evaluation.

All this was summarized as follows:

(1) MAJOR FUNCTIONS IN ADMINISTERING EDUCATIONAL MATERIALS AND EQUIPMENT (RECAPITULATION)

| Function | Operation | Level of regulation[1] Central, District, Local |
|---|---|---|
| Planning | Definition of objectives<br>Identification of needs<br>Inventory, classification and measurement of cost<br>Programming and financing | |
| Provision | Technical specifications<br>Selection<br>Tenders and markets<br>Production<br>Quality control<br>Information | |
| Delivery | Planning<br>Storage<br>Distribution<br>in kind<br>in credits<br>Control | |
| Utilization | Maintenance<br>Follow-up<br>Information<br>Training | |
| Research and development | | |

1. The level at which these operations are carried out depends upon the context (degree of centralization or decentralization of the system, kind of economic organization, how much responsibility devolves upon the institutions, etc).

(2) **Theoretical Model**

It is possible to develop a kind of theoretical model, reiterating the functions which have to be carried out:

(a) at the level of the school or community;

(b) at the level of the support centre common to several schools or learning centres;

(c) at the national level.

(i) **At the level of the community**

The following functions should be taken into account:

**Information** (received) on the availability of instructional materials and equipment and their possible acquisition.

**Selection** and choice of equipment and materials.

**Acquisition** and financial sources (equipment plan, practical modalities).

**Utilization** - for example, organization of specialized centres or units within the institution (workshop, audio-visual centre, library); adaptation of instructional area; specific regulations for the institution; obtaining operational budgets for the use of existing material.

**Maintenance and replacement:** maintenance carried out during and after the period of guarantee (specialized personnel or contract with a specialized company); budgetary provision for the renewal of material after its expected life-span.

**Development of educational projects** specific to the institution or integrated into experiments and research outside the institution.

In summary:

| |
|---|
| INFORMATION |
| SELECTION |
| ACQUISITION |
| UTILIZATION |
| MAINTENANCE |
| DEVELOPMENT OF PROJECTS |

(ii) **At the level of a local resource centre**

A local resource centre common to several institutions and learning centres undertakes activities for selection, acquisition, utilization and maintenance at two levels: that of the centre's own equipment and that of the assistance supplied to various centres and schools. In addition, it has three other specific functions: the production of information documents, audio-visual materials and media, courseware, etc.: the dissemination of these documents and materials (on loan); and training for users either within the centre or in liaison with training centres. It can also organize: capitalization of the lessons learned from the use of these materials and equipment at all levels of the educational system; regulation and evaluation of educational projects and experiments; and elaboration of projects and experiments which could be implemented in schools.

In summary:

| |
|---|
| INFORMATION |
| SELECTION |
| ACQUISITION |
| UTILIZATION |
| MAINTENANCE |
| |
| PRODUCTION |
| DISTRIBUTION |
| |
| TRAINING |
| |
| CAPITALIZATION |
| EVALUATION |
| REGULATION |
| |
| IMPLEMENTATION OF PROJECTS |

(iii) **At the national level**

All these functions are present in a national or district centre, but with the addition of the following:

**Co-ordination of activities carried out by local centres** carried out by local centres.

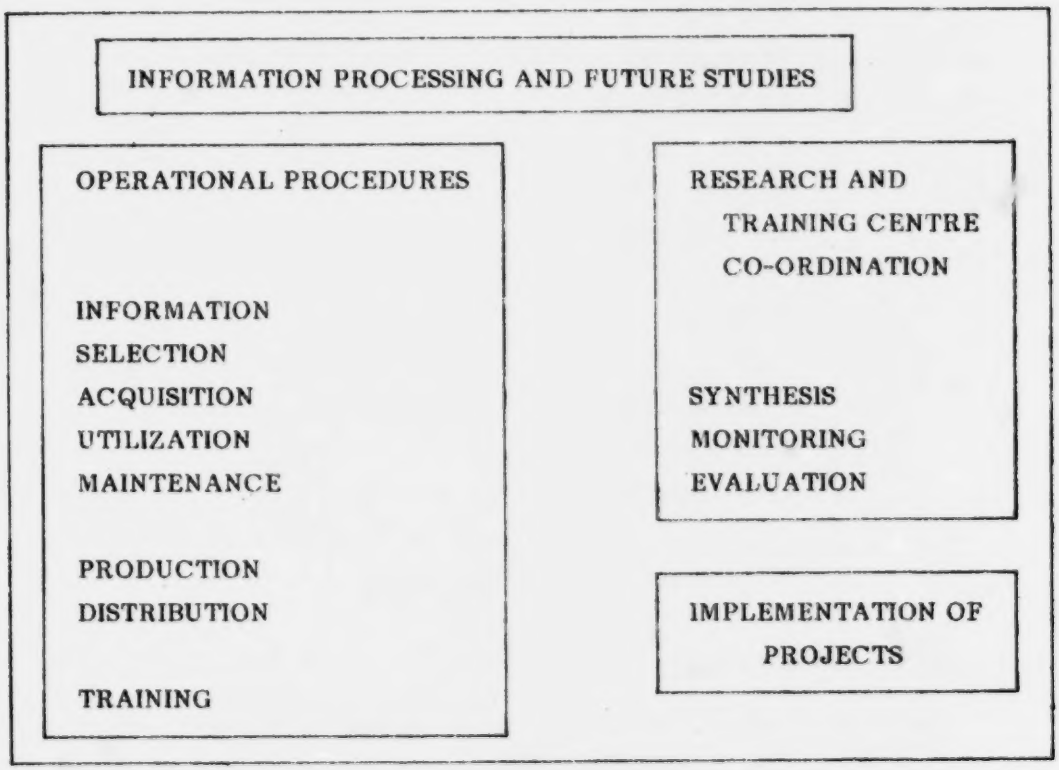
**Research activities** (to test equipment, formulate technical specifications, define testing procedures).

**Establishment of relations with other partners** (industrial, private distribution companies, radio and television companies, etc.).

It should be noted, however, that some of these functions can be shared with local centres.

In addition to the above there would seem to be a need for a specialized unit, acting in liaison with decision-makers, to collect and process information (needs expressed by those within the education system, trends in education and research results), and to carry out future studies. Once a decision has been made on this, its application will require the presence of administrators specializing in the various operational branches of the central administration.

In summary



J. Planning and Developing the Manuscript

This aspect was related to the pupils, books and teachers guide. A learner's book should be considered as an aid to learning and teaching. It must be suitable for normal class conditions in a given area.

Planning a book has two aspects, viz:

- the problem of subject matter which must contribute to the students education, i.e., what is basic to the subject being written on; and the book must help the learner to understand the world around him; and

- the problem of how the subject is to be taught.

In developing a manuscript, the author should consider:

1. Language, (clear and simple language)
2. Length of sentences and paras
3. The relative merits of written text
4. Diagrams
5. Illustration
6. Cueing
7. Type setting

Before embarking on these start with a clear definition of objectives. To do this examine the following points:

First an introduction to the book. Then:

1. Use of appropriate language

Use simple words and sentences instead of compound and hard words.

2. Format

Author should decide:

- upon the plan of the book
- what the immediate objectives if tge book are
- what format
- what level of language for the grade
- breaking down topics into teacherable units

If this approach is taken then one may follow these elements:

- Rationale
- Objectives
- Background information
- Teaching/learning materials

- Required knowledge
- Teaching-learning experiences
- Summary
- Pupil assessment
- Level of mastery
- Time allocation

3. Illustrations

4. Cueing devices

5. Consistency in style, language, etc.

6. Grading the material

7. Preliminary and final pages; what is there

8. The final manuscript

   - typed, all aspects of it

   - evaluation of it

   - Revision of manuscript

9. Trial-testing the material and what to work for when trying materials

Following the above analysis, account was made of the issues raised as follows:

(1) Criteria for reviewing - syllabus details of which were as follows:

## (a) Criteria for Reviewing Syllabus

Subject/Content

1. Topics - sequenced
2. Content details
3. Objectives:
   a. General objectives
   b. Specific objectives
4. Teaching-learning experiences
5. Teaching-learning materials
6. Assessment of objectives criteria
7. Connection between topics
8. Mix of theory and practice
9. Application of learning
10. Application to real life
11. Reference to other content and relationship to each
12. Higher level thought processes
13. Time schedule - by subject within subject
14. Look for objectives with variable mastery level
15. Look for specific teaching-learning experiences for gifted
16. Reference to pupil books

## (b) Scope and Sequence

**Purposes:**

1. To organize content according to some rational sequence for learning,
2. To develop topic titles which can have meaning to curriculum specialists,
3. To provide an overall MAP of what should be learned and when,
4. To provide a guide to curriculum writers in preparing textbooks and teachers' guides,
5. To provide evaluators with a guide for developing instruments for measuring student outcomes.

## (c) Five Steps for Preparing Scope and Sequence

1. **Select topics**
2. **Set objectives**
3. **Examine requirements for ordering objectives**
4. **Combine with other subject/content fields**

(d) Suggested Organization for the TEACHERS Syllabus

(i) Short summary of the content area

(ii) Overview of the time available for this content

(iii) General Objectives

(iv) A summary of appropriate learning-teaching experiences

(v) Relationship or expectations from this content field to others

(vi) Any special concerns for the affective and psychomotor domains.

(vii) Topics (Units)

(viii) Objectives - (same as scope and sequence)

(ix) Content

(x) Suggested teaching strategies

(xi) Teaching-learning materials

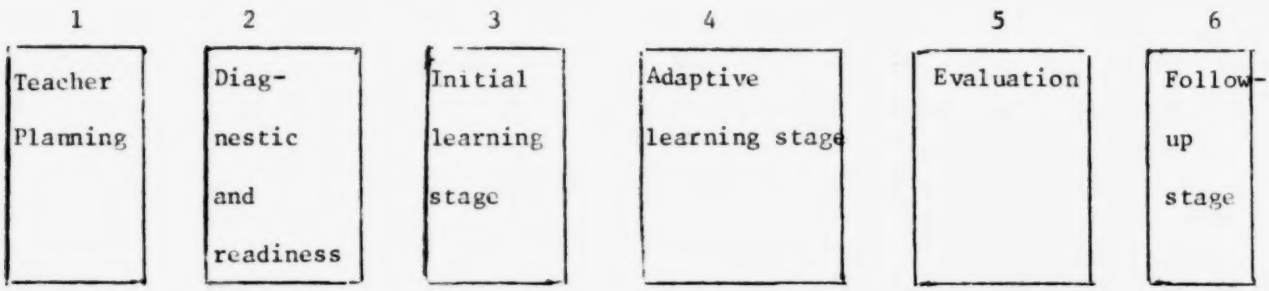
(xii) Assessment - Need mastery criteria

(xiii) References (1) Curriculum staff, (2) Teachers

(2) Developing and using a Teacher's Guide

First an analysis was made of an instructional system as follows:

(a) Instructional System




1. Teacher planning.
2. Diagnastic and readiness stage.
3. Initial learning stage.
4. Adaptive learning stage.
5. Topic or lesson outcome evaluation
6. Follow-up activities and assessment of those who failed to meet desired criteria of learning outcomes.

## (b) Objectives of Teacher Guides

To assist teachers in.

1. Improving their instructional communication skills.
2. Improving their knowledge at the content area.
3. Planning the instructional time more effectively.
4. Selecting appropriate teaching strategies for a given lesson and objective.
5. Selecting and developing appropriate teaching aids.
6. Assigning and utilizing appropriate aids.
7. Utilizing pupil books appropriately.
8. Organizing instructional activities for more effective use of instructional time.
9. Organizing instructional activities so that larger numbers of pupils will succeed.
10. Being able to develop more comprehensive lesson plans in the same time now devoted to this.

(c) Suggested Contents for a Teachers Guide

I. Total standard or Grade level

1. Rationale
2. Organization of the Guide
3. Aims and Goals
   (a) Of this content area
   (b) Of this standard or grade level
4. Proposed time schedule;
   (a) Term schedule
   (b) Within term schedule
5. Listing and description of any specific strategies or methods to be used

II. Unit Information

1. Rationale
2. Objectives of the unit
3. Relationship of this Unit to other units
4. General Background Information for the teacher.
5. General Information for the pupils.
6. Mastery or performance standard expected.
7. Materials and Learning Aids needed for this unit
8. Vocabulary to be developed in this unit.

III. Lesson or subject topics level

1. Short descriptions
2. Specific objectives
3. Teacher information (insert lesson plans)
4. Pupil information
5. References for additional information
6. Suggested pupil assessment and mastery criteria

IV. Unit assessment

V. Appendix

(d) **Lesson Plans**

Materials

Strategies

Student Activities

Suggested teaching plan with approximate times

Suggested classroom management plan

Sample "check test"

Suggested for adaptive learning

References for additional information

(e) Measurement Topics

I. General characteristics of measuring instruments.

A. Objectivity - Can two or more persons scoring the same instrument arrive at the same score in the same manner.

B. Realiability - does the same instrument give the same scores over the time required. Reliability coefficient.

1. Test - retest

2. Two forms of the same test - alternate forms

3. Split - half

4. $KR_{20}$ and $KR_{21}$ (Kuder Richardson) Internal consistancy

C. Validity - does the instrument measure the trait it is supposed to measure.

1. Content

2. Predictive

3. Concurrent

4. Construct

D. Comprehensiveness - Does the instrument cover the full range of the trait but not other traits.

E. Administability - Can different individuals administer the same instrument and obtain the same results. (rapport).

II. Standard error of measurement.

$SE_m = S.D. \sqrt{1 - Rxy}$

III. Types of measuring instruments

A. Aptitude tests

1. Intelligence

2. Subject area

3. Occupational

4. Higher education

B. Achievement

1. Norm referenced

2. Criterial referenced

- diognatic
- mostery

C. Interviews and questionnaires

1. Open ended

2. Closed or structured

D. Scaling or scales (attitude;opinions;interests)

1. Likert scales

E. Observational

1. Time

2. Event

F. Anadotol information

(3) Course and lesson planning:

Analysis was made as follows:

- The basics of planning

All good teachers/tutors do plan whatever they want to do. In practice, the success of any course programme or activity depends on good planning, and the skillfulness with which the plan is carried out.

Basically, planning consists of deciding in advance:

(a) what one wishes to accomplish;
(b) how one wishes to accomplish it.

In planning one must consider the following questions:

(i) what is to be accomplished
(ii) who is to do what
(iii) how is it to be done
(iv) when and in what order will things be done
(v) where will it be done
(vi) why do we want to accomplish this, and why do we plan to do it this way?

If these questions are logically considered and answered, one should be able to make a good plan.

- Planning the Course

(A) Preparing the Course Plan

Good course planning ensures that all the pr r learning are not only covered but are given the proper phasis.

There are some basic steps for preparing a course plan viz:

(i) Determining the overall goals for the course. In so doing one must decide what it is that the learners will get from the course and why.

(ii) Determining the principal specific objectives or terminal learning, that is, the specific behavioural objectives which should be included in the course in view of the overall course objectives.

(iii) Determining the sequence of topics and the amount of time to be spent on each topic;

(iv) Determining the major assignments, references, texts and approaches in the light of goals and topics to be discussed.

In determining the overall goal, it is important to consider the following:

(a) the nature of the objective or discipline;

(b) the needs of the learners including their academic and vocational goals;

(c) the previous experiences of the learners,

(d) the learners state of maturity, interest and other characteristics;

(e) the elements of the curriculum both vertical and horizontal;

(f) the philosophy of the school;

(g) one's own philosophy of teaching.

This goal should be written out as a statement. It need not be long, provided it sets out the limits to the teaching one is about to attempt, suggests the types of approaches, indicates the points of emphasis and sets the direction for teaching.

(B) Laying out the Course

Once the overall goals have been set, the sequence of topics and the amount of time to be spent on each should be determined. This, however, should not be fixed nor should be rigid because every good course plan is subject to change.

The following procedure is suggested for laying out the course.

(a) Divide the course into alarge topics or units. There can be a dozen or so units so that the course is organized in meaningful wholes and that relationships between units can be easily understood or seen.

(b) Determine how much time to allocate on each topic. Stress the important topics and soft pedal the less important ones.

In laying out the course, a number of important points should be considered:

(a) The course should be psychologically organized by centring it round the learners rather than the subject matter. The course should not limit the learners to book learning, but should be a judicious mixture of vicarious and direct experiences;

(b) make provisions for individualizing the course content, to take into account individual differences in learners;

Provide opportunities for differentiation within the units and if necessary, for addition to, deletion from or substitution for the units in the normal sequence.

(c) Adjust the course plan to the resources available;

(d) Make the course plan flexible so that when need arises topics can be added, deleted or subtracted without disrupting the course;

(e) A course should not be overstuffed. A person should therefore be skillful in learning out some content. Attempt should not be made to try and cover everything, i.e. the intire subject or text book;

(f) The teacher-learner planning may be desirable in some planning of courses.

- Planning the Unit

(A) Characteristics of the Unit

A Unit consists of the study of a topic for a period of several weeks. Usually the unit is centred around some major understanding;problem, issue or theme. The unit consists of a variety of learning experiences, problem solving, independent study, reading dramatizing, reporting, speaking, listening, etc.

These characteristics of the unit - length of time, centralization on a theme, and a variety of learning experiences - the unit approach provides a number of advantages not found in ordinary day-to-day teaching viz:

(i) It provides opportunities for integrated teaching in which one can bring out the various relationships and interrelationships in the topics under discussion more easily than in the day-to-day approach;

(ii) It provides for continuity, whereas day-to-day teaching is fragmented;

(iii) It provides for opportunities for flexibility and for the individualization of instruction;

(iv) Provides for greater scope for in-depth study, and

(v) It provides greater opportunities for the learner to participate in planning and for initiative.

(B) Planning a Teaching - Learning Unit

The plan for a teaching-learning unit contains the following elements:

(i) The setting of introductory information, e.g. title, time duration, and grade level;

(ii) An overview describing what the unit is about and a greater view of what the learners will learn;

(iii) The specific learning objectives, i.e. specific learning skills, attitudes, ideals, knowledge. The objectives should be described as learning products or terminal behaviour;

(iv) The unit of work or activities, i.e. the learning activities in which one will engage during the unit;

(v) Methods, activities and instruments to be used in evaluating the progress of the learners;

(vi) Materials to be used;

In planning the objectives of the unit, one should be familiar with the materials of the topic: should where necessary consult curriculum guides and resource units for ideas;and write a general statement which summarises what learners are expected to achieve.

In planning the unit of work, the following steps should be taken into account:

(a) gather ideas for learning activities that might be suitable for the unit;

(b) check the learning activities and make sure that they would contribute to attainment of your learning objectives;

(c) check that your learning activities are feasible in your situation;

(d) decide on the important activities of which every learner should participate and those that are optional;

(e) decide on how the unit is to be introduced - provide for introductory development as well as concluding activities;

(f) plan culminating activities which will summarize what has been learned;and apply what has been learned to new situations;

(g) plan for the evaluation of learners throughout the unit.

K. Evaluation in Curriculum Development

During the workshop evaluation was defined as the systematic process of collecting and analysing in order to make decisions. Evaluation should not be equated with measurement since the latter is but one essential component of the former.

It was emphasized that the purpose of evaluation is the same regardless of the type of evaluation or the nature of the objectives, whether instructional, curriculum or project objectives, explicit or implicit process oriented or product oriented short-term or long-term. In all cases the evaluation process is basically the same and involves determination of the types of data to be collected; determination of the individual, group or groups from whom data will be obtained; collection of data, analysis of the data interpretation and decision making.

Good evaluation usually involves decisions based on a number of sources from where data were collected not on a single test or source. The more the sources of data the greater the chances for better decisions.

Following these remarks, a number of issues were considered in respect of evaluation, a summary of which is given here-under.:

(a) Types of evaluation versus model

Types of evaluation refer to the different processes, products, and persons subject to evaluation - students, curricula, schools, school systems, large populations, special programmes and projects, and personnel. The basic evaluation process is the same regardless of what is being evaluated; what differs is what is being evaluated, how the evaluation process is applied, and the type of decisions made.

All valid systems and models for evaluation involves the same essential components namely: specification of goals and objectives; selection and development of measurement tools; delineation of strategies for objective attainment; process and product procedures; and analysis and interpretation of results.

It was then emphasized that there is a fine line between research and evaluation, and an evaluation may very easily utilize a research design, both research and evaluation involve decision making and both are based on scientific method.

(b) Major Evaluation Approaches

The following approaches were examined in detail:

1. System Analysis - Accountability model
2. Behavioural Objective model
3. Decision making or Discrepancy model
4. Goal Free model
5. Art criticisms model
6. Professional review
7. Luasi - Legam model
8. Case study approach

Models 2 and 3 are the most common used for educational products and new or revised programs.

(c) General Model for Evaluation

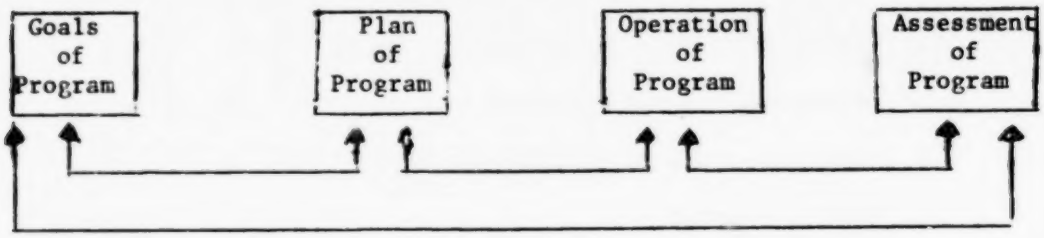
This model was critically examined:

| | Intended or Theoretical | Actual | |
|---|---|---|---|
| Goals | 1 | 4 | Assessments |
| Means | 2 | 3 | |

1. State Goals (Aims) - Evaluation against Need
2. Develop Means - - Evaluation against Goals
3. Implement Means - Evaluate to determine if what is planned is Actually implemented
4. Actual Goals obtained - Evaluate to determine what goals are actually obtained.

Finally - Compare Actual Goals to Desired goals

(d) Individually Prescribed Instruction (IPI) Evaluation Model




Decision Maker

Funders -

School District
Teachers
Heads of schools
Critics

Researchers

(e) Plan - Lindvall Model

The model is based on the following:

1. Instructional objectives
2. An assessment program - pupil
3. Instructional plans for each pupil

**Prescriptions**

4. Instructional materials and devices
5. Teacher classroom activities
6. Pupil classroom activities
7. Classroom management procedures

(f) C I P P - Evaluation

The CIPP model involves four types of evaluation viz: context evaluation, input evaluation, process evaluation and product evaluation (CIPP).

(i) Context evaluation involves the identification of needs, statement of programme objectives and the development and selection of criterion measures through interview or expert opinion research and surveys.

(ii) Input evaluation focuses on the examination of various input strategies evaluating their strengths and weaknesses and then selecting the best strategy for solving the project goals.

(iii) Process evaluation is geared to monitoring the change process to detect defects and thereby institute corrective measures for the success of the programme.

(iv) Product evaluation involves an assessment of project outcomes as they relate to project objectives, context, input and processes of the project.

In all these evaluations, it is necessary to do the following:

1. Focusing the evaluation - Decision makers
2. Collection of information - Plan
3. Organization of information - Plan
4. Analysis of information - Plan
5. Reporting of information - Plan
6. Administration of the evaluation - Plan
7. Implementation of the evaluation

(g) Common features of all evaluation

The following features were identified as being common to all evaluation:

1. Specification of decision makers and needs of each.
2. Specification of program or "thing" to be evaluated.
3. Determine methodology to be used.
4. Determine the types of data to be collected - Requires specification of the variables.
5. Develop an evaluation plan.
6. Develop or select assessment instruments.
7. Develop a work schedule and time line.
8. Decide on the final report.

(h) Some basic concepts in evaluation

I. Purpose of the evaluation

(i) For accountability
(ii) Provides information for decision making
(iii) Determines effectiveness of programme
(iv) Assists to maintain standards
(v) Increases awareness

| A. Program under development | | B. Program in operation | |
|---|---|---|---|
| Concepts: | Formative<br>Summative | Concepts: | Intrinsic<br>Output |

| MAJOR DIFFERENCES BETWEEN THE TWO | |
|---|---|
| 1. User and audience developers, potential users, funders, implementation, decision makers | 1. Implementers, users who have adopted or become part of the program. (Since I have selected this it must be good) |
| 2. Invested interests eager to know in order to improve | Completely mixed reactions are predictable. |
| 3. Source of data Current, accessible | Historical, documents usually written for PR or political purposes. |
| 4. Data control | |
| 5. Reasons for requesting the evaluation | |
| 6. Possible interpretation of data | |
| 7. Determining reliability and validity of evaluation. | |

(i) Planning chart for evaluation

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|

1. Topic - Follow outline of program to be evaluated.
2. Source of information.
3. Location of sources
4. Estimated time to obtain.
5. Priority of obtaining.
6. Evaluation purpose - Formative, summative intrinsic, output.
7. Staff member responsible.
8. Staff tasks required.
9. Staff resources needed.
10. Center/Institute resources needed.
11. Date completed information is needed.
12. Comments/concerns/questions.

(j) Measuring instruments

For measuring instruments to be useful, they should have:

1. Objectivity and ease of scoring;
2. Reliability in terms of content, testing - retesting and internal consistency;
3. Validity, e.g., valid measuring instruments such as a measuring stick;
   (i) Content validity - questionnaires be developed to ask about the content; does content fit with the objectives?
   (ii) Concurrent - administer the questionnaire with a set of questions separately to compare answers.
   (iii) Predictive - determine interests of learners and using that to predict what they will be doing later;
   (iv) Construct - this is the least used in a curriculum centre. One may have to look at a theory to develop a construct.
4. Comprehensiveness
5. Ease of administration
6. Standard error measurement

(k) Types of instruments

1. Aptitude tests predict the ability to perform.
2. Achievement tests either norm-reference which ran the items or criteria-referenced, the two types used being diagnostic or proficiency.
3. Interviews or questionnaires - which may be open or closed.
4. Opinionnaires - using questions to solicit an opinion.
5. Observation - checking on the events.

(1) Systems evaluation - Program in progress

1. Clarify purpose of program.
2. Determine present level of achievement (same as CIPP)
3. Assess clarity and quality of goal statements.
4. Examine reactional - what decision makers want what.
5. Assess clarity of plan - proposed.
6. Assess materials.
7. Assess validity of implementation.
8. Determine effectiveness.
9. Describe completed program or system.
10. Assess achievement of intended and unintended outcomes.

## (m) Considerations in planning evaluation studies

### Suggested format for evaluation proposals

I. Rationale (why is this evaluation being done?)

II. Objectives of the evaluation study

- A. What will be the product(s) of the evaluation study?
- B. What audiences will be served by the evaluation study?

III. Description of the programme being evaluated

- A. Philosophy behind the programme
- B. Content of the programme
- C. Objectives of the programme, implicit and explicit
- D. Programme procedures (strategies, media, etc.)
- E. Students
- F. Community (federal, state, local) and instructional context of program

IV. Evaluation design

- A. Constraints on evaluation design
- B. General organizational plan (or model) for program evaluation
- C. Evaluative questions
- D. Information required to answer the questions
- E. Sources of information; methods for collecting information
- F. Data collection schedule
- G. Techniques for analysis of collected information
- H. Standards; bases for judging quality
- I. Reporting procedures
- J. Proposed budget

V. Description of final report

A. Outline of report(s) to be produced by evaluator

B. Usefulness of the products of the study

C. Conscious biases of evaluator that may be inadvertently injected into the final report

The rationale should contain the charge to the evaluator (such as an administrative request or legislative requirement) and the general evaluation approach to which the evaluator is committed. The proposal should also contain precise statements of the objectives of the evaluation study and descriptions of its proposed products and benefits. Explicating the objectives of the study early should give direction to the rest of the plan.

(n) An example of an evaluation proposal of the in-service teacher education programme for D.I.S.'s and primary school headmasters in Malawi

1. Rationale for the evaluation.

   (a) Objectives of the evaluation.

2. Background information

   (a) description of the audience

      (i) qualifications

      (ii) range of experiences

      (iii) duties they perform

   (d) Duration of the course (how long it has been going on)

   (c) Venue and organization of the course

   (d) Resource personnel/materials

   (e) Sources of funds

3. Objectives of the course (intended and unintended)

4. Constraints

5. Content of the course

6. Program strategies

7. Evaluation design

   (a) sources of data

   (b) instruments

   (c) collection of data

   (d) data interpretation

8. Time tine (when to start and when to finish)

9. Budget for the evaluation exercise

10. Final report

## PART THREE

### X. Evaluation and conclusions of the worksnop

This part of the report relates to the opinions expressed by participants during the workshop lectures, group discussions or question time. These expressed opinions were either solicited in an answer to a questionnaire or question time, or voluntarily given by participants as they saw fit to express such opinions.

A first response solicited from the participants was in respect of the organization, administration, logistic support and welfare of the participants. All the participants (34 of them) felt that the organization, administration and logistic support were very good or excellent. Indeed they were full of praise for the organization and administrative efficiency of the workshop. On the other hand, all the participants were disatisfied with the allowance paid to them in spite of the workshop being full board. Much as they were well fed and taken care of, they felt that the out-of-pocket allowance of MK200 about (US$100) for six weeks was just too small to take care of their out-of-pocket expenses in six weeks. In spite of repeated appeals to the sponsors of the workshop, there was no additional funds given to the participants. The participants, however, were full of praise for the organizers for the week-end field trips to Lake Malawi, Zomba Plateau, Blantyre City, etc. These trips, they said, were indeed a real taste of Malawi, the "Warm Heart of Africa".

As regards the length of the workshop, most of the participants felt that six weeks was just right for a training programme considering that it was tailor-made for their jobs. In effect, there was a hundred per cent response that the training programme was very relevant to what they were doing in their respective countries. Most of them expressed satisfaction that the objectives of the workshop had been very much fulfilled. In all, they felt that the training programme was worthwhile and a great stimulant to many of them.

Participants felt that the instructional materials used for the workshop were very good and would prove useful after the workshop. As regards exercises and assignments, the majority of the participants felt that there was too much work to be done in six weeks particularly considering that individual assignments on curriculum design and on scope and sequence were time consuming and difficult to handle. The two weeks allocated to these two exercises were not enough. More time was needed for them.

The topics considered most useful and rewarding were: Curriculum Design; Developing a Scope and Sequence; Developing Pupils Book and Teachers' Guide; and Curriculum Evaluation. These were extremely important for much of the work they were doing.

The overall rating of the workshop was that the majority of participants, about seventy-five per cent said that it was excellent and the remainder said it was very good, i.e., all of them were satisfied that they had benefitted from participating in the curriculum development course.

In this regard, the participants endorsed the programme proposal that this training programme on curriculum development should be held annually for the next three years (1988-1990) selecting a new venue for each successive year.

# LIST OF DOCUMENTS USED

1. Curriculum Development Course:
   General Information (pp 28)

2. An Introduction to the Theory and Practice of Curriculum Development in Africa (main textbook pp 252)

3. A Guide for Writers of Instructional Materials:
   Design and Development of Teachers' and Pupils' Books (pp 80)

4. Developing a Teaching Syllabus (pp 22)

5. A Comparison of Models of Evaluation (pp 46)

6. Basic Issues for Curriculum Planning and Development of Formal and Non-Formal Education Systems (pp 30)

7. Curriculum Design:
   Definitions and Propositions (pp 10)

8. Models of Curriculum Development:
   A Synthesis (pp 12)

9. Preparing Instructional Objectives (pp 25)

10. Reasons for Specifying Objectives (pp 25)

11. Measuring Learning Outcomes (pp 6)

12. Developing Objectives according to Cognitive and Affective Taxonomies (pp 8)

13. Primary Science Scope and Sequence Chart.

14. National Syllabi, Primary School Textbooks and Teachers Guides and Education Policy documents of all the sixteen participating countries for group or individual exercises

15. Assortment of handouts and charts.

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